Holistic Reading into the Structure of the Environment

Case Study of Tehran

Thesis Submitted for

the Degree of Ph.D. in Architecture

By

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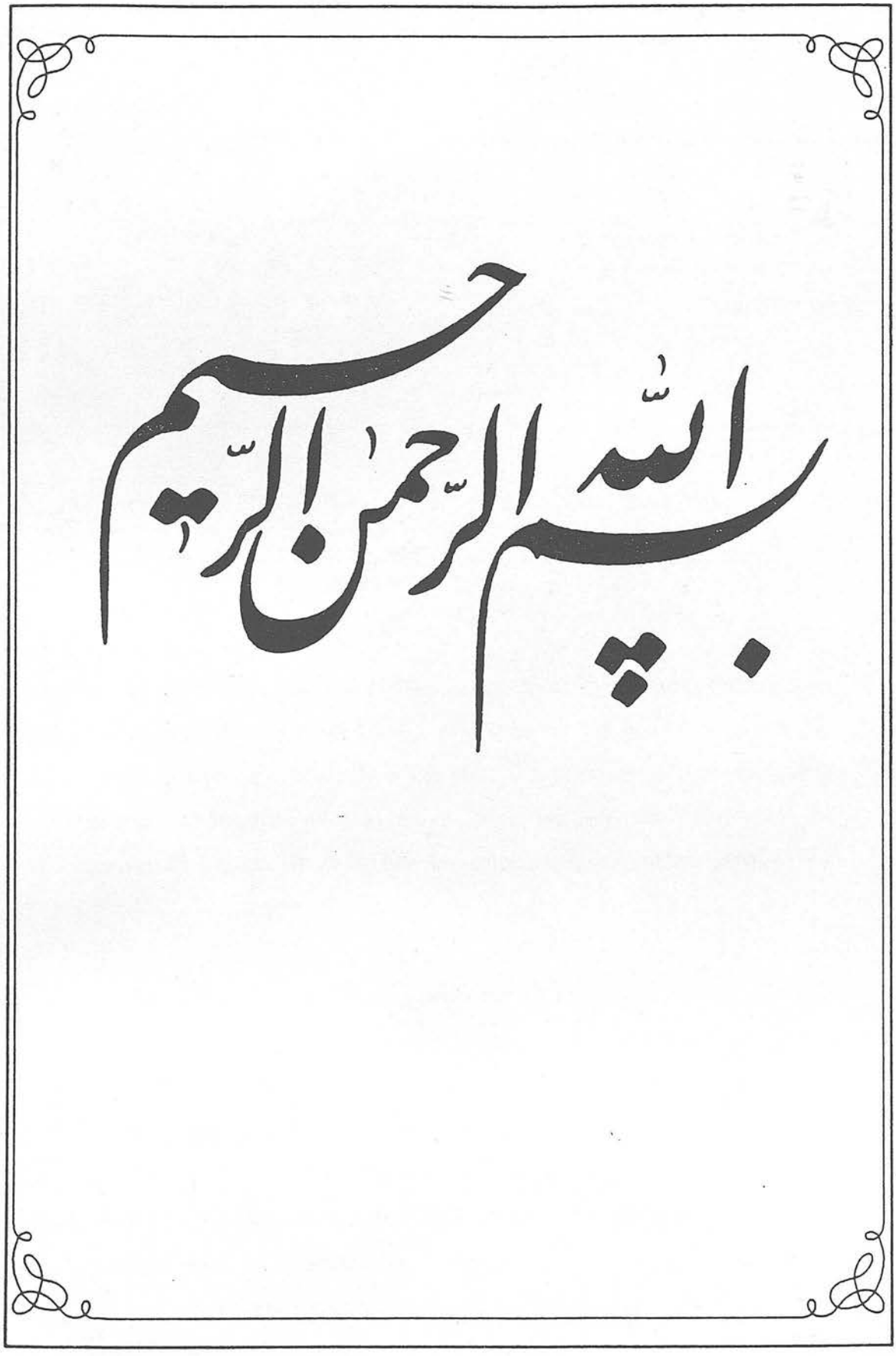

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Abstract of Thesis Form

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Abstract

Examination of man - environment interrelation and its current crisis is the main concern of this thesis. The study argues that the root of the problem lies in ignoring the symbolic systems and world views of the indigenous cultures particularly of the Third World countries. Such ignorance is evident in the approaches and practices, adopted in these countries, particularly in the fields of planning, urban design and architecture which are oversimplified and mostly reductionist in their nature.

The thesis arrived at this hypothesis from examining peoples perceptions and attitudes towards their environment in the City of Teheran, Iran. The thesis's topic was developed in response to a serious event that the author experienced in his work as chief planner in Iran. An open ended questionnaire was initiated whose outcome has shown very alarming confusion and deep duality in the residents views and their like and dislike responses. This triggered the thesis's concern and led to the structure and methodology which emerged from the interpretation of the deep constructs given by people themselves. The major dimensions and factors were then analysed and their relations to the culture of Iran and its world views were examined. One of the most important readings which came out of this research was that on the one hand there is always the conventional resource from which decision makers built their own opinions, this is the discourse

See reverse side for notes

of the various design and planning disciplines. This subject is usually dominated by theories and literature characterised mostly by excessive generalisation and media speculation. On the other hand, the thesis came to assert the significance of the other source from which decisions could be reliable, efficient and more responsive to the actual criteria, those which belong to the needs and expectations of people themselves and the way they construe their own realities. The thesis was driven through this devolopmental process of analysis towards reconfirming the holistic approach that for many centuries has tied people to their environment where both are considered as one inseparable entity.

The thesis has identified a number of aspects which collectively define the holistic nature of man environment phenomenon. These are the verbal and nonverbal systems of communication within each particular culture. This suggests that to perceive and understand the environment and its ingredients is the same as to understand the semantic structure of a given language. It also suggests that understanding the environment in a given society is possible through the different symbols and rituals that are involved in the continual giving-taking process between people and environment. Consequently, one would argue that the environment in which human beings live is not an arbitrary collection of isolated bits and pieces. People actually live in a contextual world perceived and experienced through the relative meanings which we impose on it. These meanings can only be understood within their local cultures. This was supported by numerous examples world wide

for Eskimos and others.

In the conclusion, the various thoughts and components of the research were tied together to form the basis for future guidance and further research work which is needed to confirm and disseminate the messages of this thesis.

Notes

1. Three copies of the thesis, each with a copy of the Abstract (on this form or on plain A4 paper) bound into precede the thesis, must be lodged with the Postgraduate Officer, together with a completed Submission of Thesis form and an additional copy of the Abstract on this form.

2. The Abstract should not normally exceed 200 words and should set forth the main argument and conclusions of the thesis. The abstract must be typeset and written in English.

DECLARATION

This thesis is my original work and has been composed solely by myself

Nasser Barati

Dedication

First, to those who have created Iranian culture over the millennia, and to those who understand and love this culture, admire it and try to preserve, sustain and evolve it for future generations.

Second, to my mother and my wife.

Acknowledgment

Before all others, I would like to thank God Almighty for giving me this opportunity to make a small contribution to knowledge and to serve others, in itself a step towards self-improvement.

An acknowledgment for a Ph.D is not complete without remembering and thanking everyone who has helped me along this path. It should also embrace all the people who have contributed to these long time efforts which have led to the completion of my thesis.

First of all, I would like to remember my late mother`s huge efforts, support, and care up to her last hours of her exemplary life. I would like also to thank my father for all his efforts and his care.

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I would like to give my greatest gratitude to my wife Mitra (Nasrin) and our daughters, Maryam, Mina, and Mona for their spiritual support and also their patience through such a difficult time in our family life. I am particularly grateful to my wife who has worked very hard as a research assistant during my preparation of this thesis.

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PART ONE

CHAPTER ONE

Introduction

1. A Warning Story of Urban Development in Iran

The author would like to sketch out a piece of his personal experience which in retrospect can be seen as having triggered the interest in the subject of this thesis. As an urban planner, I was working during 1990-1992 as the project manager for Mehran, a war damaged small town, close to the Iran-Iraq border. At that time a shocking event happened which led to a dramatic change in my understanding of the planning systems and practices I had learnt in my planning training. In the course of the planning of the town`s reconstruction, I heard that one of the people who used to live in the town had wanted to commit suicide because the local authority would not allow him to contact us to discuss his opposition to what we had decided concerning his demolished house. The fact was that according to our reconstruction plan we had decided to use his house plot in expanding a public service facility and he had found himself in a position of being unable to do anything about it. As a result of this moving and shocking incident I immediately and without any hesitation changed that part of the plan to give the man back his house plot. The event prompted the whole project to decide to keep the previous fabric of the residential area as it had been before the war. All the members of the team, which besides myself included a number of other planners and architects, felt very relieved in reaching such a decision despite various problematic consequences.

This episode raised a set of serious questions to be answered: Was the initial development planning process that decision makers and planners generally follow, a proper one for the

reconstruction of towns devastated by war? Was it appropriate to any environmental development at all, even those cases which do not involve reconstruction operations? Can such processes ever be successful when people are totally excluded ? These and many other questions started to gradually draw out my main concerns about the whole planning process and the extent to which it can really meet people`s needs and expectations while at the same time allowing them to fulfil their role in the creation and development of their own environments.

The author is aware of the sorts of immediate responses which may be made by planners to such concerns and the issue of addressing people`s views and their role in planning. Many professionals particularly in Iran would argue that ordinary people simply do not know that much about urban planning or design, and explain about the dramatic reactions people usually make in events of this kind. Instead of sticking to this typical self-convincing answer, for the first time, the author started to think about this story more deeply and more seriously. As a result the team was led to make a series of changes to the initial plans which we discovered to be extremely hard and required a tremendous effort and rethinking. Many public facilities such as schools, clinics, and other functions had to be relocated. We were doing this with a new vision and expectations driven by ever-accumulating questions which the author wouldn't have had to ask prior to his involvement in this project. It might be useful to record some of these questions:

* What makes people unable to both understand and accept the professionals, designs or plans?

* How and what, then, do these people really understand or know about their surroundings?

* Do the social and cultural values which people share have any role in the communication process with the built environment?

* If these values do have a role then is it our duty to change people`s attitudes and cultural affinity to their environment in order to make them accept our globally based design interventions? Is this possible? how and why this is needed? how is it possible for people to communicate with an environment when someone else designs it for them? how would one assess the implication of this on people`s acceptability of such places?

* How do people evaluate the environment or perceive its quality and how do they learn to do this? do they carry in their minds criteria for such perception, where do these criteria come from?

These questions and many others started a new era in the author's career, an era which is characterised by a regard towards people, their desires, feelings, sentiments and their understanding of their own environment. These have been always undervalued in decision making processes and perhaps this might be the actual reason for all sorts of problems that many societies, in the West and in the East, are facing. These problems can be defined in terms relating to alienation, social disorder and isolation which have led people to detach themselves from their own places or even their own society. Both people and places have lost the associations which tie them together. However, the author considers himself fortunate to have experienced this event and many others which succeeded later; as a result he felt that there could be no better and more authentic subject for a Ph.D thesis than this topic which grew and grew in his mind.

2. The Emergence of a Notion

One of the most important readings which emerged from the experience of working with people was the different sources that inform them. On the one hand there is always the conventional resource from which decision makers draw their opinions, this is the discourse of the various design and planning disciplines, usually dominated by theories and literature. In some countries, planners like many other professionals spend all their training time exposed to these opinions and theories which are likely to have been produced or written away from the real context. On the other hand the author has come to acknowledge another very important source from which decisions could be more viable and more responsive to actual quality criteria, those which pertain to people and the ways in which they construe their own realities, their needs and expectations.

The immediate response to these questions, and many more, was that the answers would lie in the existing living environment itself, in other words in the houses people live in, in the streets they walk in and in the working places and all other places where they experience their lives. These can provide a profound understanding of people`s values and realities, and it is possible to argue that people and the environment are so intertwined that they can be considered as one inseparable entity. And there is a history for this association. From the start as children, we learn criteria from and make judgements based on experience of the environment which we then store in our mind or language repertoire.

To perceive and understand elements in the environment in this way is similar to understanding words in a language, given that they contain symbolic meanings that people share and through which they connect to the environment. It would follow that the

environment in which we live is not an arbitrary collection of isolated bits and pieces. Rather, we live in a contextual world perceived and experienced through the relative meanings which we impose on it. As a result, it is possible to say that a design solution can be best evaluated in relation to the social and cultural context of its people, just as an element in a given environment is understandable only if it is examined in a given context.

For instance a shape like (O) cannot be properly and fully understood unless it is seen in a context. It could be for example part of a number (12O1), it could be a letter (DOOR), it could also be a cross section of a pipe, or represent the moon, and so on. The example above deals with a simple figure. More complex and sophisticated examples are those which relate to environmental concepts. The following examples provide a demonstration of the conceptual complexity of environmental phenomena seen within a cultural context, in this case Iran and expressed in its Persian language; these are: ' house', ' shadow' and ' salt'.

* House means 'world',
* Shadow means 'protection' or 'shield',
* Salty means 'sweet',

These connotations are not obvious to those who have not lived in or experienced the cultural and environmental context of Iranian society. The house in Iran, for instance, is an enclosed space with various complex functions related to rites and rituals, social value systems and the structure of the community, and are the manifestations of the Iranian's symbolic world. In the course of this study, we will find out that while the house in Iran evolved to symbolise the characteristics of the natural environment which is specific there, it also contains symbolic meanings of the local social systems and cultural traditions. It is therefore a symbol in itself which ritualises life. Indeed, it is a transformation of values and

beliefs which are ultimately embedded in the Iranian culture and world view and which are specific to the indigenous resources and ecology of the country. Therefore, house in Iran, as a whole, is perceived symbolically and is understood as 'world' or manifestation of 'world'.

In Persian the words 'baa namak', or, 'namakin' which means 'salty', are metaphorically equivalent to sweet, cute, and beautiful. They also mean 'delicious' or 'tasty'. A 'baa namak' food is a tasty delicious food. On the other hand, in the Middle Eastern countries, including Iran, 'Maliha', is a popular female name which metaphorically means 'sweet', 'cute', and 'charming'. The word is, however, derived from an Arabic noun 'melh' which means 'salt'. Again in most parts of the arid regions like Iran, dehydration is dangerously high, particularly during summer time, in which the biological need for salt increases. This biological need has been transferred to a cultural taste, in that people like salty foods. During the summer on some occasions one may even need to have a lot of pure salt to prevent one`s health being put in serious danger. Biologically a lack of salt could lead to death. Salt, therefore, in both Iranian and Arabic cultures is perceived symbolically as 'sweet' and 'charming', hence tasty and delicious. In Iranian culture 'bread and salt' are symbolically considered as sacred natural food. There could be similar examples based on other transformations of meaning, for example in Pakistan 'milk and sugar' are symbolically considered sacred.

As another example, shadow, particularly in the arid regions of the Middle East, is important as a shield for a fighter in a battle field. Shadow in a dry desert where the temperature reaches 50° centigrade means life, safety, tranquillity, and survival. This is why shadow means 'protection', and 'support' because biologically people see it as a kind of protector against the extreme effects of the sun.

These examples and their implications have led to a considerable enlightenment of this study. A particularly important conclusion here is that the symbolic meanings of these concepts are best understandable within their own context. A belief in this notion of contextuality brings us to the point where we see that: 'People understand things when they are located properly in an understandable context for them because they are themselves part of that context.' The second point, as a result, is that: people do not seem to understand many of the urban plans and designs that neglect them because they are already out of their context. These almost contemplative thoughts have had a significant implication on the development of this research. They are the driving force for the core of the thesis and an important influence in the final outcome and theoretical overview. It is important to notice that these views have emerged as a result of the various problems that the author has experienced or observed happening in Iran, particularly within the context of planning and urban design. As a result of this, problems can be considered here as setting the background to the thesis and the basis from which it developed its structure and hypotheses. It was felt that a brief historical review of these general problems is needed.

3. Problem Identification

From about one hundred years ago policy making in Iran, in terms of the development of the built environment, started to pull itself away from the dominance of local public culture. This, of course, was affected strongly by the tremendous changes in European society from the Renaissance period (14th-16th centuries) onwards, the French Revolution (18th), the Industrial Revolution (18th-19th) in Britain and the emergence of many different schools of thought in science, philosophy and social subjects. When the influence of these schools of thought reached Iran (as we will see in Chapter Two) the result was new planning and design

theories which led to the emergence of a type of built environment in which people and their culture are eventually excluded, and hence a state of fragmentation came onto the scene. In this thesis the fragmentation of the people-environment connection is seen in relation to people`s disability to understand their own environment. It was decided to take Tehran as a case study, in order to examine the fragmentation hypothesis. While the case of Tehran can be seen as culturally specific, the aim is also to come out with a conclusion, an approach rather than a set model, which may be applied globally.

Within the context of Iran, although policy makers and technocrats, preoccupied by the power of these imported technologies as well as scientific methods, have tried always to develop the environment in Iran, the results have not been acceptable to the people nor even to the policy makers and professionals. Even after the Revolution in Iran, which was motivated by a deep desire to revitalise and nurture the local culture, there have been many problems of this kind which can be seen in the various urban projects such as those related to the reconstruction of the damaged towns during the war and the building of numerous new towns.

Following the vast improvements in all aspects of human society in recent centuries, a very detailed specialisation and distribution of tasks as well as the emergence of modern professionalism have moved people away from fulfilling any role in the creation of their environment as their ancestors used to do. The adoption of modern approaches to the built environment development, above all, was seen by some states as a way to control their societies, such is the case in Iran as we will see later. As a result these modern ideas were advocated by some authorities particularly of the Third World as more positive and more associated with progress and prosperity. Politicians, receiving advice from designers,

planners, etc. started to change the built environment in the way they thought best.

The reaction to and interpretation of the modern movement and its associated approaches took different forms particularly in countries other than those in which the modern movement first emerged. Many of these interpretations were in fact formalised to suit the various purposes of these governments which were largely based on centralised and authoritarianism systems. Many Iranian authors (see Chapter Two) have argued that because of these systems modernism in Iran was found to be a useful tool by the state for both impressing and controlling the society; therefore it was both a support for and sustained by a move towards centralisation. Often we find that an urban plan is the result of an agreement between government and private consultancies. The local people`s contribution to the process is almost nothing. At the same time no alternative approach to involve ordinary people in urban planning has developed. Even after the Revolution, decision-making systems in the area of urban developments were not changed. We will see in Chapter Two another characteristic of the application of modernism in Iran as perhaps in most Third World countries: that not only did the idea go against the traditional fabric of cities but also vast historical areas and traditional textures were demolished in favour of the modernisation programmes.

A more theoretical point is the study's view that every physical change in the built environment invests more information into it. This new information should be meaningful to users. Planning and design activities do indeed always put meanings into the built environment but we have to be aware of them, to whom these meanings are addressed, how they are imposed, why, and to what extent they are understandable by the local people.

The investigations of this thesis will assert that the introduction of new ideas, systems of

decision making and education in relation to environmental developments from the last century has led to a situation within which people have been unable to contribute to the various activities of these developments. In the past the indigenous environment was dominated by the public culture. Architects and urban designers used to be part of the community who shared with people their needs and cultural values even when they were commissioned by governmental institutions or the central authorities. Architecture, both of individual buildings and urban developments, conformed to and expressed the local cultural knowledge held and appreciated by the whole society. Before the introduction of modernisation programmes, government itself was dependent on the knowledge and skills of many individuals such as artists, builders and craftsmen in the development of the environment, Isfehan is a good example of this. Furthermore, design training was not controlled by the government but by the society itself.

Now almost all the activities of planning and management, are decided, approved and implemented by the government or under its direct control in a top-down decision making system. What has happened after just a century of working within the new urban development system is that all parties, including the people, the government, the academics, and the professionals are dissatisfied. This is mainly the expression of a contradiction felt by all these people which was apparently caused by the application of this kind of planning and design approach.

The quality that the author decided to examine in this thesis is that of traditional societies where culture and social values still form the basis of communication and the urban form and its function are not separated from the people. They could be considered as one entity tied together through cultural symbols, tradition and a world view. This stands in comparison to

the modern era which might be characterised by fragmentation in so many aspects of peoples' lives. One example of this is an attitude towards things, which have come to be seen as isolated objects with hardly any meaning beyond their physical dimensions, excluding people`s perceptions and their own symbolic meanings and associations.

4. Objectives

The above initial ideas and concerns have led to the formation of a number of objectives which the thesis intends to explore or achieve. It was felt that a contextual vision in design and decision making within the area of environmental development is more appropriate and compatible with the needs and expectations of any society. Such vision will be achieved through awareness of the broader perspective of people-environment interrelationships and their associated aspects. The study has suggested that the main characteristics of this vision is cultural orientation through which the mutual relations of man and the built environment can be expressed again, and the avoidance of severe interruption such as has been brought by the various interpretations of modernist approaches in architecture, urban design and town planning. The wider aspiration here is to build a theoretical base through which the oversimplified or classical scientific view of the built environment can be changed to a holistic and humanistic one (see Chapter Three). This is seen important for providing a background for changing the current attitudes within environmental discourse from a globalism to a contextual relativism which is based on the realities of the indigenous cultures and people's perceptions.

In order to introduce such a framework and consider it within the context of Iran in particular, the study has undertaken the following tasks :

* **In-depth interviews in Tehran** which were seen as a useful technique in examining how people perceive and interpret their own environment and how they connect to it. George A Kelly's Personal Construct Psychology (**P.C.P.**) approach was used for this purpose.

* **A case study on the history of the urban development of Tehran** from the last two hundred years situating it within general historical patterns which have addressed the relationships of economic, political and social aspects to the urban and architectural realm of Tehran.

* **A thorough analytical investigation of the modern and traditional approaches,** their application to the development of the environment within various cultural traditions and world views of both the **Western and the Eastern schools of thought**. The analysis is based on key writings from the relevant literature on the subject.

* **An analysis of the concept of culture**, its meaning and the way the built environment structure can be read by people in a cultural context.

* **A theoretical investigation of symbols,** their associational values and systems and the way they provide the ingredients of the built environment within each particular context. An emphasis was placed particularly on the role of both **language and rituals** in setting up a system of both **verbal and nonverbal** communication .

This research overall attempts to offer a comprehensive theoretical perspective to the study of environmental development. This will be achieved through studying the conflicts and contradictions which exist among the various schools of thought and associated ideologies

and through testing their appropriateness for application in the realm of architecture and urban planning in general and Iran in particular. The study has adopted a multi-disciplinary approach in order to address thoroughly the variety of subjects mentioned above, which include environmental psychology, historical studies, scientific world views, cultural and symbolism studies, and their implications in the built environment. The scope of this thesis is to manage a move which starts from local to the global. It is not the intention to emphasise globalism but, on the contrary, to look at the local relativistic solutions as the only global law in environmental development.

This research can be seen both as a response to a practical situation as well as an academic work. Its main contribution is focused on the re-introduction of the attitude which examines and understands the built environment in a holistic way (see Chapter Three). **The expected outcome of the study is the provision of a theoretical perspective which will be needed by decision makers for the elaboration of an indigenous model of environmental development.** It is intended that this experience will find its way to the public through the author's efforts of publication as well as through his professional work, and therefore through the built enviroment itself. The thesis emphasises the value of local knowledge which has been forgotten and has lain unused for some time. It also opens up ways for people to appreciate their own environment and its cultural roots.

5. Tehran as a Case Study

It was decided that the examination of some of the issues which concern this study and which were briefly introduced above would be more informative and appropriate within an actual case study. For this reason the Capital City, Tehran, was selected for this research for the

following reasons:

1. Tehran is the largest and the most populated city in Iran. It has both traditional and modern fabrics seen as strongly opposing each other. This city is the most problematic one in the country. As capital city for a variety of governments, each of which has changed Tehran's fabric, the city is the best example of the introduction of different ideas, styles and approaches over time. On the other hand, this city plays a very important role as a model for the other Iranian cities (see Chapter Two).

2. The author was born and grew up in Tehran which could provide a very valuable experience for a researcher in this field. The author has also had cultural experience of living in both the traditional and modern parts of the city for a long time.

3. Most of the decisions concerning planning and urban design are made by the government organisations which are located in the capital, and are implemented in the city itself. This has given the author the opportunity for an extended experience into the nature and implications of these decisions and other governmental policies.

6. Research Methodology

The range of research methods chosen for this study are mostly qualitative. This is due to the complex and subjective nature of the issues and areas of interest which are the concern of the study. It is important to confirm the value and appropriateness of this approach. It has helped the author to gather first hand information about the built environment. This was achieved through the examination of people's perceptions, critical analysis of the concepts which arose from them, the examination of theories which have been applied throughout the different

areas, and a view of the remarkable impact on the general quality of the environment and on people's satisfaction.

On the one hand the main characteristic of this research is its consideration of the value of both empirical and theoretical investigations. On the other, the research development has been guided by a strong belief in the value of cultural relativism within which any judgment was seen to be most appropriate. In order to understand what everything means in a certain environment, a semiological examination is necessary. Because in a contextual situation 'things' are not arbitrary and meaningless. They already have their own specific meanings which make them understandable to local people. Therefore, it was necessary not to lean on the classic pair theory/observation methodology alone. The adoption of cultural relativism by the study however, is in itself a hypothesis to be studied throughout the various sections of the thesis. Therefore it will not be considered that the research is based on any kind of preconception. The real intention is that the adoption of cultural relativism will facilitate a marriage between the research's theoretical undertakings and the real world.

7. Structure of the Study

The layout of this thesis consists of the introduction and two parts followed by the conclusion. Part One has two chapters and Part Two has three chapters.

Title: Holistic Reading into the Structure of the Environment: Case Study of Tehran

*** Introduction**

Part One: The Problem: People-Built Environment Dualism

* Introduction

Ch. 1: Environmental Perception Test: Tehran's Dwellers Interviews

Ch. 2 : Tehran History and Urban Development

Part Two: An Holistic Approach for Indigenous Development

* Introduction

Ch. 3 : Holism: A Challenge to Dualism in Man-Environment Discourse

Ch. 4 : Culture and Perception

Ch. 5 : Reading and Understanding the Environment through Symbolic Systems

*** Conclusion**

Part One is dedicated to the presentation of the problematic situation which led to the development of the subject in general. This was achieved in two steps, the first intended to justify the problematic situation itself by reference to people who are the subject of these problems. A particular and very well known technique was used to elicit information about how people perceive their environment or the places in which they live. This task was accomplished in Chapter One. It was obvious from the initial findings of this chapter that people are very confused, and that a state of uncertainty is influencing the way people make decisions or take choices over various aspects of their own city. These findings have opened up the path for the continuation and justification of the entire thesis. They have also triggered ideas about the various views and postulates that the research has undertaken. This was guided by a number of objectives and goals that emerged from the characteristics and nature of people`s responses. The majority of these responses confirm the significance of the deep

rooted cultural values and concepts and world views of the Iranian society.

The second chapter within this part is dedicated to the review of the history of these problems. This was achieved through the analysis of the history and evolution of the urban developments of the country generally and Tehran in particular as the main case study. Both chapters raised ideas about the kinds of undertakings which should be adapted for the rest of the thesis, that is the emphasis on the nature of the cultural issues and their holistic ramifications and expressions within the built environment.

Part Two is dedicated in its three chapters to fulfilling this task. Chapter one presents an analysis of the various schools of thought and different world views of both the Western and the Eastern worlds and their cultures. This has led to the need to explore further into the meaning of the concept of culture. In order to understand how culture communicates its concepts, Chapter Five introduces an analysis of verbal and nonverbal symbolisation and symbolic systems. The main idea of Part Two is to assert the strong relationship between the environment and culture which was taken as one holistic entity within which an actual understanding could resolve or avoid future problematic situations.

In the conclusion, the various thoughts and components of the research were tied together to form the basis for future guidance and further research work which is needed to confirm and disseminate the messages of this thesis.

Note: Every attempt has been made to follow current convention in the use of pronouns which are non-gender specific, but this has not always been possible. Therefore, any use of the words 'Man', 'he' or 'his' should not be taken to imply gender preference or discrimination.

Part One

The Problem: People - Built Environment Dualism

Introduction to Part One

Part One takes an analytical view of Tehran and its residents. It begins with the identification of a dualistic attitude in the residents of Tehran with regard to their city and continues in an exploration, not only into the nature of the resultant lack of understanding of their relationship with the built environment, but also the reasons behind it. The research therefore looks at the relationship between the residents' dissocation with the city and the processes of development and change that have led to the present day situation.

This includes an examination of Tehran in its setting of historical and political contexts and an exploration of the essential qualities of "Iranian-ness" that have built the physical and social nature of the city and its people over time.

Chapter One

Environmental Perception Test:

Tehran's Dwellers Interviews

1.1. Introduction

Tehran is the Capital City of Iran. It was selected as capital city some two hundred years ago, and has since then been the scene of various changes which have been dominated by one way top-down centralised political systems. As a result of this, people in Tehran as well as many other towns and cities have taken no real part in the process of urban development. Since the city's development is seen as the government's business there has been no perceived need to examine people`s ideas and expectations. People`s ideas and desires, therefore, were not studied or even considered at all. From the author's point of view, and in the light of his own experience, these fluctuating changes which have lasted for many decades and which have affected people's understanding of and interaction with their own environment, should be re-examined and tested. As mentioned above Tehran is representative of most Iranian towns and cities in terms of the impact of these changes and therefore it was decided to select this city as a case study for this examination. In addition, Tehran, from a social point of view, can also represent the whole country because most of its population were originally emigrants from all over Iran. The examination of these issues is the subject of this chapter.

There are various methods appropriate to this examination. The study decided to choose the technique of the questionnaire and interviews as they are standard to the process used in

much research work especially in the area of environmental perception. The main objective here is to find out about how people perceive their environment and whether there is evidence to confirm the author's initial concern about the problematic situation. In addition the expected findings could also identify aspects in people's responses which confirm the deep structure concepts and perceptions of the subjects involved. It was stated earlier that the study has adopted a view of cultural relativism partly to guide the research and to give it a direction but also and more importantly as an hypothesis to be examined; inevitably this will influence and shape the final conclusions of this research.

It was concluded in the introduction that the natural and preferable means of dealing with people and their settlements is to make decisions which derive from people's desires and perception of the quality of their own environment. It was stated also earlier that Iran has inherited influences from a variety of ideologies and approaches which were developed particularly in Europe and America that have left their marks on planning and urban development and the policies adopted to implement these developments. The study will go on to argue that this has widened the gap between people and their environment and has led to a state of disintegration and dissociation. However, to make these statements at the beginning may appear rather hypothetical therefore in this chapter the study intends to explore this issue and find out whether there are grounds for such claims. This was felt necessary before embarking on the study and before introducing the views of holism and cultural relativism. The aim is to make the findings of this thesis be seen as directly derived from concrete and sure grounds, i.e. people's responses and views on the quality and compatibility of their environment and its development.

1.2. The Survey, its Theoretical Basis and Technique

The technique introduced briefly in this chapter is called " **The Repertory Grid** " which is based on the George Kelly's " **Personal Construct Theory**". It is basically an interview technique in which the interviewee is not given pre-structured answers to choose from. The technique allows for the classification of the subjects' responses regarding their assessment of various aspects of the environment. This happens without any kind of predesigned format, so that the sequential and open nature of the questionnaire technique itself lets the structure and classification of these responses emerge spontaneously. The subject is simply asked to make preferences from his initial response, one preference leading onto another, the relationships between these sequential responses will indicate an order or structure which represents the significance of these responses, which Kelly calls **Constructs**. The objective here is to examine the result of people's evaluation of current environmental conditions. There are various available methods for the interpretation and analysis of these responses; some of these are manual, others are based on computer programmes. These will be explained in forthcoming sections of this chapter.

As with many other techniques there are advantages and disadvantages in using this technique in the area of environmental studies, which should be pointed out and considered at the outset. The first is that the technique is complicated as it consists of several stages and it usually takes quite some time to complete all the steps and parts of the interview. The average time in this research for each interview is three hours. The second difficulty is that because of its complicated nature, the process of the interview can be rather hard for people to follow. This is particularly obvious when the subject has not received a high level of education or is illiterate (and indeed this is a limitation that faced this research). Therefore

occasionally the results of the interview could not be used and some interviewees gave up in the process of the interview.

Another perhaps more important issue is the availability of the right computer programme which should have sufficient capacity to deal with an extended questionnaire. The amount of information gathered in this survey was beyond the capacity of the college's computer software. This was a situation created by having initially compounded two groups, house dwellers and apartment dwellers, which were then further classified in terms of gender to form four groups. The restrictions caused by this expansion of the data meant that some parts of the analysis had to be done manually. In spite of these limitations the P.C.P related technique was used in this research because:

1. The researcher`s influence on the subjects is minimal in this technique, especially when compared with pre-structured questionnaire techniques.

2. There are no pre-structured questions, which gives the subjects greater opportunity to express themselves more easily. The declared statements are, therefore, more expressive of the subjects' real perceptions or views, although the subsequent interpretation might be comparatively difficult.

3. This technique concentrates not only on preferences but also on the very deep reasons which might underlie them. If a subject expresses a preference to live in urban areas, as opposed to rural areas, for example, this preference might be expressed as an outcome of a long series of responses the subject has made, in which a large amount of information has been given on a variety of concerns he or she holds. The technique will also help to generate the expression of other subjective concepts that concern the person at a deeper level, as he or she goes on to justify this preference. The technique therefore has a particularly important advantage, and has been found to be one of the most useful techniques, in allowing for the

examination of the rather complicated and complex network of subjective concepts and issues to be found in research in relation to environmental perception.

1.2.1. Personal Construct Psychology (P.C.P.)

It is useful here to give a brief introduction to P.C.P. to help situate the reader. Personal Construct Psychology was introduced by the American psychologist, George Alexander Kelly in 1955 (see Jackson 1986; Aspinall 1992). According to Kelly, whatever the world may actually be, people can come to grips with it only by placing their own interpretations upon what they see. Kelly suggested that people have mental filters, which he calls constructs, through which they perceive and construe the world. In this way, people builds for themselves a representational model of the world which enables them to plan a course of behaviour (Kelly 1955). This model will be developed and evaluated over time as constructions of reality are tested and modified to allow for better understanding and prediction.

People are involved with the environment through a kind of communication system (see Chapter Four). In order to be more in touch with the world, one needs to anticipate events and different conditions. Each person characteristically evolves a construction system embracing ordinal relationships between constructs for convenience in anticipating events (Kelly 1955).

Unlike most psychological theories, Personal Construct Psychology (P.C.P.) is not limited to a particular psychological process, or to particular types of people. It deals with the structure rather than the substance of personality. Its basic unit is the construct, a kind of structure used to anticipate events (Jackson 1986). The idea of a person struggling to impose

meaning on experience is central to Kelly's thinking. We make sense of situations by imposing a structure on them (Aspinall 1992).

Kelly argued that understanding the world is a complicated process in which we have to build up a set of expectancies ("hypotheses") from birth which clearly reflects our past experiences. However, the crucial point is that these hypotheses influence and condition our present experience and our anticipation of the future. They are like a pair of psychologically derived "spectacles" through which we get information but which also affect what we see and how we see it. Kelly called the "spectacles" a construct system, with the individual hypotheses called constructs.

Personal Construct Theory has characteristics through which it has achieved a rather unique position in environmental psychological research. At the heart of P.C.P. lies the idea that reality is relative rather than absolute. We use our past constructions to anticipate the future and test these constructions against future events. A person, therefore, is not passively dependent on the surrounding environment. We are also not controlled by behaviourist or stimuli derived criteria coming from needs which should be satisfied. People-environment interrelations are based on a wider and progressively more complicated process (Bannister et. al. 1986).

People naturally have the ability to experience the environment and derive 'facts' out of it and then to stick to those 'facts' in order to act within the environment until such a time that new 'facts' replace them. What is stressed here is the fact that each of us carries in our heads a set of stored assumptions from our past experience. These stored assumptions are axes of discrimination (constructs) onto which we project the events that confront us (Aspinall

1992). The way a person sees and interprets elements in the environment is such that new information is always picked up in accordance with what kind of knowledge has already been gained. Simply put, these mental constructs are a kind of structured knowledge that a person has already built in themind, working as a filter through which the person sees the world, interprets it, and makes anticipations for the future. This fitting of events onto a pre-existing construct system is called assimilation. Of course there are occasions when in order to make sense of events old constructs need to be reappraised or new constructs added, this is called accommodation (Piaget 1977)

George Kelly (1955) argues that it is not possible to say that constructs are essences derived by the mind out of available reality. They are imposed upon events, not abstracted from them. There is only one place they come from; that is the person who is to use them. In other words the human might put his own meaning into the environment, (i.e. built environment) and then perceives it as he wants to. The important fact is that this is not a fixed or unchangeable process. We can perceive new things and therefore change. In this sense we improves our understanding from and of the world. In this process we are continually adapting ourselves with our surroundings.

The importance of constructs then becomes clear; our network of constructs is not simply a residue reflecting past experience but functions as a set of filters through which incoming information is processed, thereby influencing and conditioning our experience in the here and now (Aspinall 1992).

Kelly goes on to argue that a construct governs the person, not the perceived object. This means that, in a strict sense, human beings make decisions which initially affect themselves

and which affect other objects only subsequently. Consequently what a person believes and shares with others, should have great influence on what he or she makes out of the real world, how he chooses and how he evaluates.

According to Kelly the medium for our perception, attitudes and judgments is the construct system. The geometry of the mind is never a complete system, therefore our perceptions are bounded by our constructs - but we are free to change our construct system. We can revise our constructions on the basis of events and our invested anticipations of them. In other words an individual has the ability to have different as well as shared views with others in society. Since shared views make the existence of the society and cooperation of the individuals in the society possible, in this research it is the common ideas about the built environment with which the thesis will be mainly concerned. In this context it could be said that we cannot contact an interpretation-free reality directly. We can only make assumptions about that reality and test the usefulness of those assumptions. Elements as well as events in the environment do not come carrying their meanings (see Kelly 1955; Aspinall 1992). Their meanings will be completed when they are perceived by people. People, on the other hand, perceive 'things' based on their cognitive stored information (see Chapter Four for more discussion). This stored information, the thesis believes, is for the most part what is known as local cultural knowledge.

The built environment responds to the shared constructs of the society because society exists and is sustainable only by virtue of these basic agreements. Shared meanings and symbols in a cultural context, when expressed in the environment, make communication between individuals possible and will help people to cope with events in their environment. The process of establishing shared meanings and symbols in the environment is part of the

production of cultural knowledge. All this happens in a contextual process by which an individual both shapes and is shaped by the environment. Any interruption to this process will affect people's perception as well as the environment itself.

In the following section the study will aim to find out how the shared meanings and symbols of the society affect the way people construe the world.

1.2.1.1. What is Construal of the World?

The first point that one has to bear in mind is that Kelly's theory considered the human as an active agent rather than a passive body (Jackson 1986). This perspective fulfils the idea of the mutual relationship between person-culture-environment. Your personality is the way you go about making sense of the world (Aspinall 1992). As a result the need to create a proper environment for a particular group of people requires an understanding of how these people understand and interpret 'environment'. This is because what is perceived from the environment should not be in opposition with the values and meanings of the environment in peoples` minds. Different foods and their ingredients in various parts of the world are a good example of this. The meat of some animals (e.g. monkeys, insects, dogs) would be unacceptable within the cultural context of Iranian and British societies, for example, whereas it forms a part of some other societies' diet. In other words perception of meat would be more significant than the meat itself. This shows how sometimes the way someone interprets an object is more significant than the object itself. He or she might feel unable to eat food although it might satisfy a biological need, due to a cultural construal of that animal. It is not possible for people in these societies to change their constructs for these kinds of foods easily, as these are deep structured constructs.

This principle also relates to the built environment. A house should not contradict the cognitive meanings of 'house' in a given society. Observation of human behaviour on its own cannot provide this kind of understanding, the way people in a society see the world and make distinctions within it needs to be considered. As a result there will be a relative fit between different physical elements and their related concepts in the environment in a given cultural context. Therefore, understanding the way a society construes the world is very important for our actions in the world.

According to Kelly a person anticipates events by construing their replication. These replications may be experienced verbally or non-verbally (Aspinall 1992; Kelly 1955). Since events never repeat themselves, else they would lose their identity, the subject can look forward to them only by devising some construction which permits him to perceive two of them in a similar manner. This construction must also permit him to be selective about which two are to be perceived similarly. Thus the same construction that serves to infer their similarity must serve also to differentiate them from others. Under a system that provides only for the identification of similarities the world dissolves into homogeneity; under one that provides only for differentiation it becomes hopelessly fragmented.

Although Kelly`s theory is oriented towards an individual approach there are important principles by which group analysis based on his theory are possible. Kelly argues that we usually do things the way we have done them before or the way others appear to do them and often when people are said to be similar, it is not because they have had the same experiences but they have placed the same interpretations on the experiences they have had.

Human experience is not measured by the number of events with which each person collides,

but by the investments each makes in the anticipation of events and by their revisions to their constructions that necessarily follow when they face up to the consequence of those events. What makes people similar, in order for their process to be similar, is their construction of experiences. Public opinions, on the other hand, are more stable and continual than individual ideas simply because our ingenuity in devising alternative constructions is limited by what is familiar for us (see Kelly 1955).

P.C.P. has far-reaching consequences for those who take a stimulus-determined view of the effects of environment on perception or behaviour. Kelly's analysis of construal of the world allows for the examination of both people's reactions to the objective, physical elements of the world around them and their subjective, personal and cultural values. The study has therefore found Kelly's theories and methodology useful in analysing the extent to which people's interpretation of the built environment fits the existing situation in Tehran, in other words how they read the existing built environment.

1.2.2. The Repertory Grid Technique

Personal Construct Theory can tell us a good deal about the way in which information is acquired and interrelated in the perceptual schema of the person.

The Repertory Grid was introduced by George Kelly in 1955 as an interview technique for mental patients (Senan 1993). The main idea of using this technique in the area of the built environment is to search for the meanings of the environment. Meaning is constituted through the momentary pairing of conceptual 'contrasting construct poles'. This assumption of bipolarity follows on directly from the description of a construct as a criterion for differentiation: recognition of similarity presupposes some notion of difference. For example,

'north - south' is a construct - we can only understand 'south' through a comparison with an implied 'north' (Jackson 1986).

The Repertory Grid is a specific interviewing technique in which the aim is to find out the structure of an individual`s construct system. Although this technique is highly sensitive to individual variation, the resultant data can also be aggregated over a group of people while retaining the individual content (Harrison et. al. 1976). In Personal Construct Theory, the idea is that every individual has an accepted meaning for each phenomenon in the environment and this meaning can be understood clearly when its contrasts have been declared. So it is more useful to think of constructs as having two poles rather than see them as separate concepts or categories.

The grid is a very sensitive method of measuring people's mental images of their environments. Although it is difficult to establish absolute criteria by which methods may be judged, the Repertory Grid enjoys significant advantages over other methods of eliciting information about images, in that the data derived from the grid are suited to both inter-individual comparison and aggregation over many individuals. The grid is closely linked to and directly derived from a coherent body of psychological theory.

Harrison et. al. also argue that the grid test is very flexible, and can be used to study any kind of perception. The suggestion is then that Personal Construct Theory and its associated interview technique will be able to provide the comprehensive framework for the integrated study of environmental cognition and behaviour so obviously required. The grid test, on the other hand, may provide an important vehicle for interaction between decision makers, planners, designers and the public (Harrison et. al. 1976).

The Repertory Grid is basically a sorting exercise in which a series of items is judged against scales. Therefore, there are three variables in the repertory grid: elements, constructs and scoring procedure (Jackson 1986). The most significant aspect of this method is that it allows subjects to express their own constructs with the minimum of investigators' interference, so that constructs are normally derived rather than given.

In its basic form, the repertory grid records an individual's perceptions of both the elements of the environment and the bipolar psychological dimensions, the personal constructs, used to discriminate between these elements (Sanan 1993). Bipolarity is defined as contrariety rather than contradiction - opposite poles that are each positive instead of one term being the negation of another. The meaning of any word is then only properly understood in relation to its contrast, and might not necessarily be a dictionary type of antonym, (for example, 'black' would be understood differently in contrast to 'white' as it would to 'asian'). Constructs are arranged in a hierarchical network. A construct is defined not just through its contrast pole but also through its inferential relationship with constructs which are more general, *superordinate*, or more specific, *subordinate* (Jackson 1986; Aspinall 1992).

Our constructs are not a random collection of potential discriminators, and are set in a hierarchical relationship to each other. The superordinate constructs have wider implications. To move up or down the hierarchy in the constructs is called laddering (see the exmple in Appendix 1). To move down, which is the target in this survey, the subject is asked for a preferred end (or the most important end) of the construct. Then the subject will be questioned as: "Why do you prefer that end?" This, every time, provokes a new construct that in turn can be subjected to the same question and so on. This laddering process is used for the clarification of constructs.

1.2.3. Introduction of Survey in Tehran

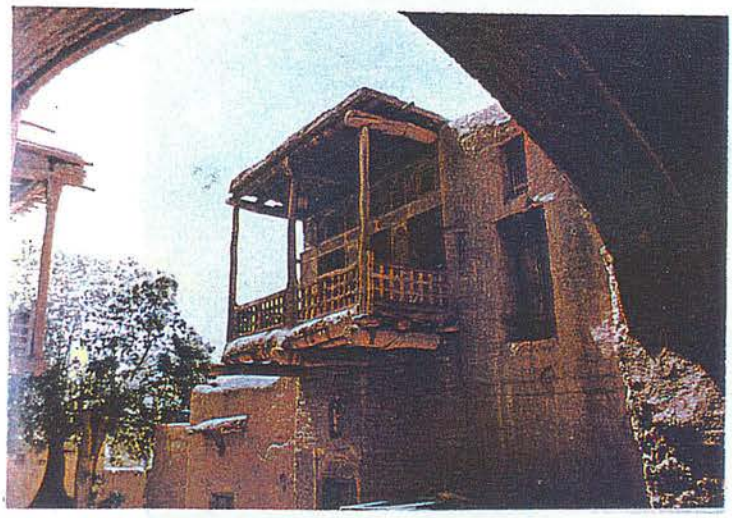
In this survey the process of the interviewing began by selecting a series of coloured photographs of the exterior of 13 different built environmental scenes. The pictures were selected mostly from different townscapes (see the List of Pictures A-M) but in a way that they were not very specifically famous scenes but representative of ordinary features that can be found all over the country. After that, forty respondents of different ages (minimum fifteen), sex, and occupation groups were interviewed to complete the process.

The last stage in the Repertory Grid is to score the constructs. The interviewee, then, ranks each. In this research a maximum seven point bipolar rating scale has been used to complete repertory grid evaluations of the built environment in general terms (see the example in Appendix 1). This gives us an element by construct matrix within which 'constructs' are rows and 'elements' are columns. This matrix is then analysed for its underlying structure in terms of the relationships between constructs (see Appendix 1 & 2).

In this survey a total number of 1011 constructs were elicited during the interviews with forty respondents. These constructs give a great deal of information about the way in which Tehrani dwellers express how they think about the built environment. The result, meanwhile, shows that people do not simply evaluate the built environment according to simple objective criteria, but also associate it with criteria ranging from quality of life and economics to identity and spirituality.

The following pages contain the 13 pictures in the survey (A-M).

Figure (1): Pictures A - M



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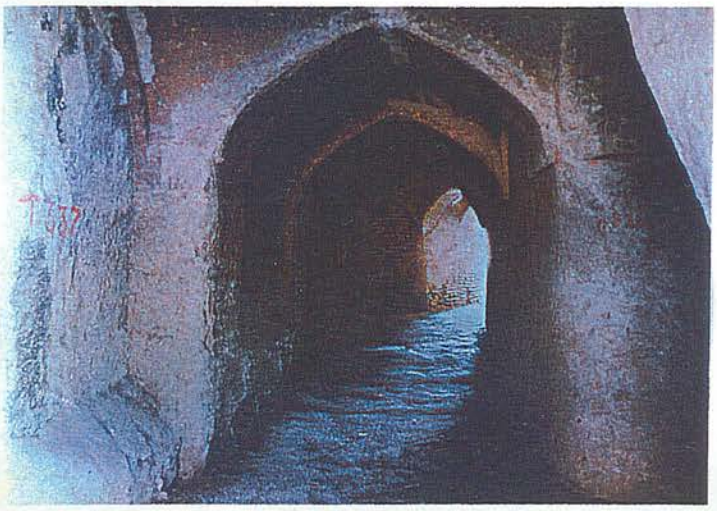

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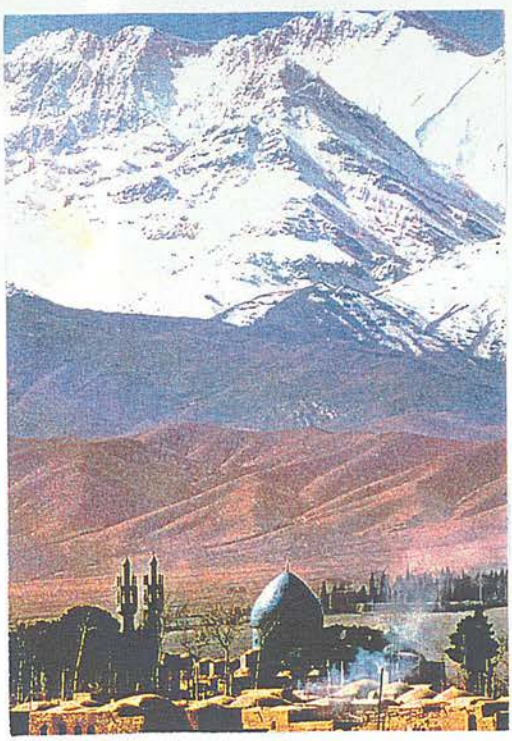

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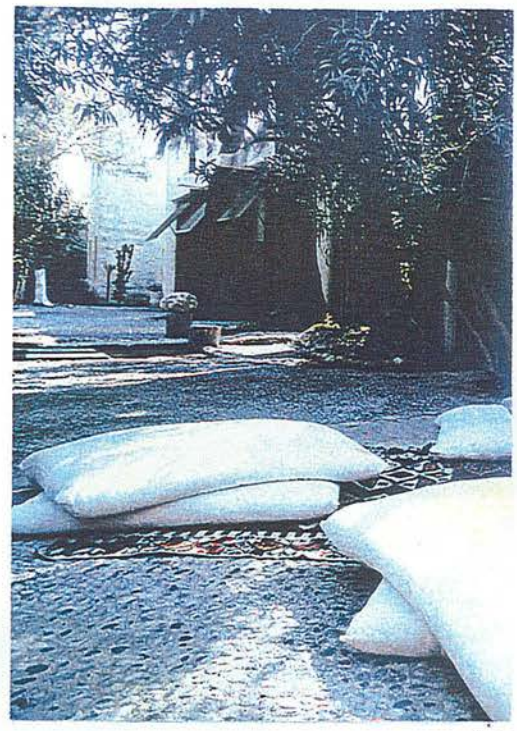

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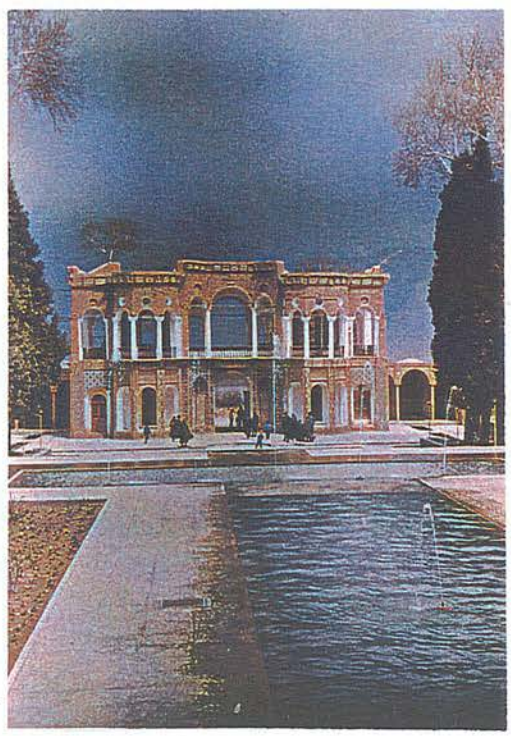

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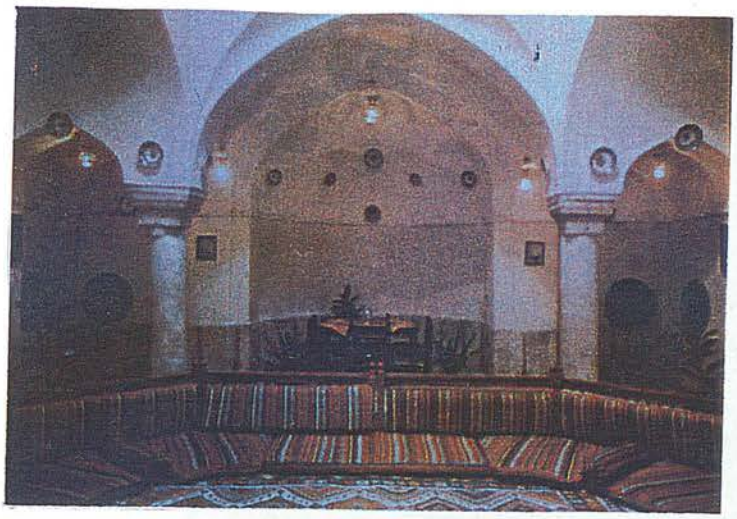

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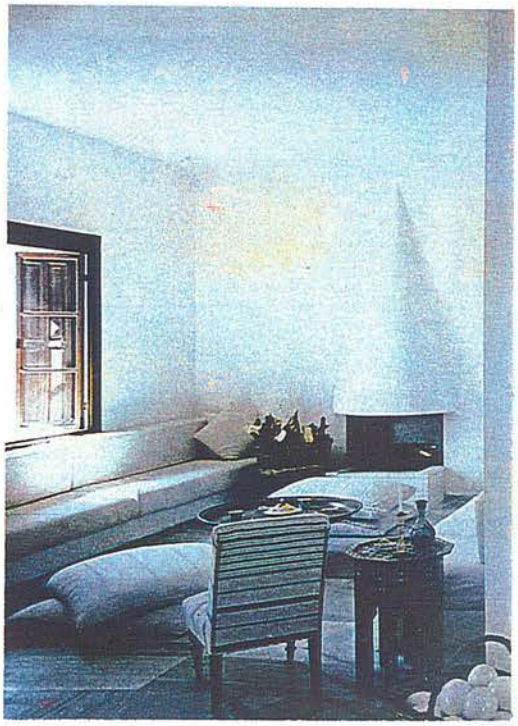

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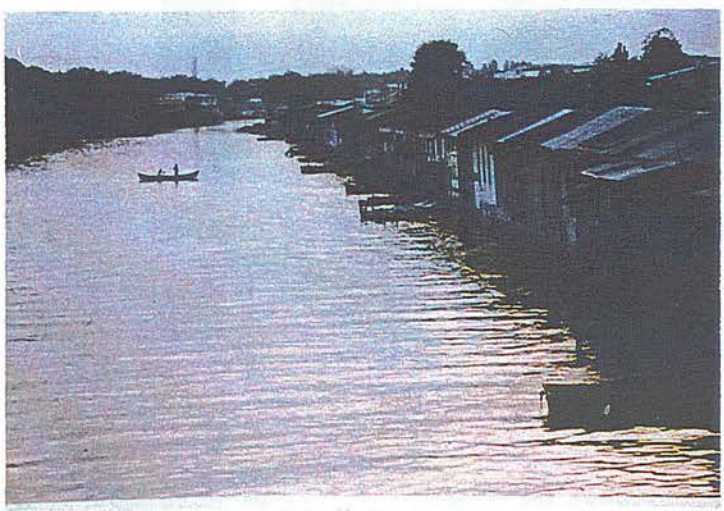

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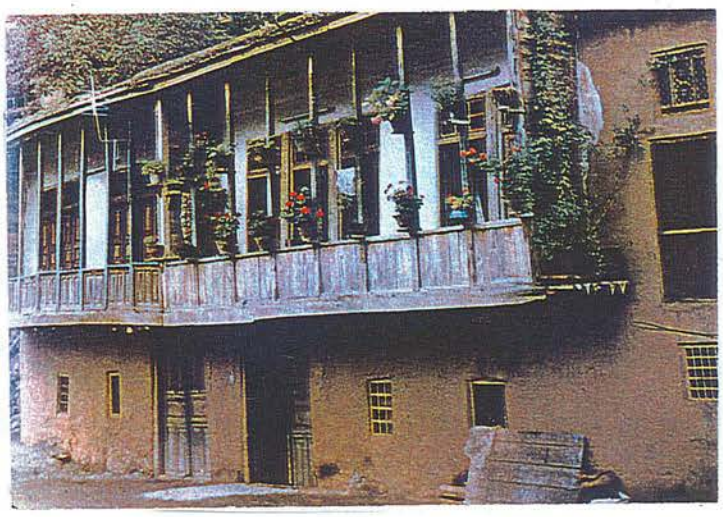

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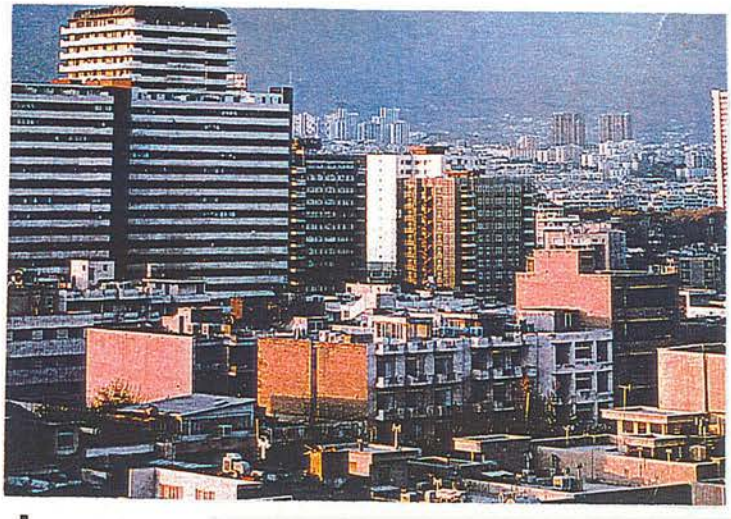

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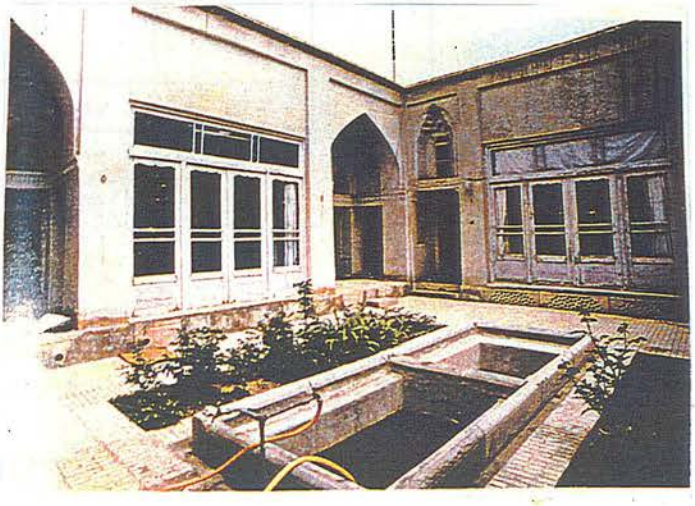


M

1.2.4. Sampling and Sample Characteristics

The Repertory Grid is a qualitative research technique for in-depth studies (e.g. see Coolican 1990). In this kind of interview technique the number of subjects need not be as large as in quantitative techniques. The number of interviewees in this survey was 40 which is considered sufficient for the purpose of this technique. The sample was not a random one but nevertheless consisted of different groups of people living in different parts of Tehran in order to obtain representation of a wide range of views in these in-depth responses. This comes close to the so called the Stratified Sampling Approach (Ibid.). The characteristics of the sample in this survey are as follows:

1. The interviewees were selected among volunteers from different parts of Tehran.

2. The subjects had been living in Tehran for at least ten years, the last five of which were spent in the same residence.

3. The sample split into two groups according to the type of dwelling:

   3.1. Ordinary local house type, i.e. courtyard house. 3.2. Apartments in high towers.

4. The sample was then further split according to sex.

Table (1.1) - General Characteristic of the Sample

Sex >> Residential Type v	Male	Female	Total
Court yard Houses	10	10	20
Apartments	10	10	20
Total	20	20	40

Source: Barati N. (1997)

As mentioned above, thirteen pictures of different urban scenes were used in this survey (Pictures A - M). The selection of photographs as elements for P.C.P. covered a range of different places. The actual nature of the scene is not held to be crucial as the elements are "triggers" for thinking about the environment (Bannister et. al. 1986) Their individual nature

is less crucial when a lengthy interview takes place which through laddering generates many constructs. Nonetheless the elements are supposedly a representative set to cover the range of places. To motivate people to think about the various types of space, this set of pictures included urban spaces on different scales, i.e. houses as well as townscapes. The introduction of the Western scene (York) amongst the set was deliberately done to examine potential subtleties between old traditional (Tehran) and old traditional (Western). The idea was to increase the possibility of people revealing as much information as possible about their interpretation of their own environment.

1.2.5. Pilot Survey

To make sure that people could understand the procedure as well as the photographs, an initial pilot survey with five people was conducted. In this part seventeen pictures were selected and this set of pictures was shown to this group. The experience showed that four pictures were not clear for people in that they could not cope with them in the interview procedure because they were either very different from the rest of the set, too similar to the others, or were too difficult to understand. The pilot survey also helped the author to become more familiar with difficulties related to the implementation of this technique in this case study. As a result of this, four pictures were put aside. Therefore, the final number of pictures in this research was thirteen.

The obtained information in this research was then analysed in three stages as follows:

1. Manual classification of all the constructs that were elicited from the interviewees.
2. Computer analysis of information using P.C.A. (Principal Component Analysis) package.
3. Manual analysis and examination of the whole group's views in relation to modern and traditional dwellings.

1.3. Manual Analysis: Classification of Constructs

It was intended to analyse and classify all the constructs elicited by the whole group, therefore these were well read and studied. The initial examination of the constructs showed that the revealed ideas could be classified into six groups, although these ideas cannot be separated from each other in the real world. The general categories were discussed and agreed by three observers (these are academic staff in the Department of Architecture, Heriot Watt University). The results of this initial classification were as follows:

1.3.1. Classification of Constructs; General Perspective

The examination of all the constructs in this survey showed that people's general concepts about their own built environment can be classified into six groups, emerging directly from the data:

Table (1.2) - General Constructs Categories in Manual Classification

General Categories	Examples
1. Quality of Life	-Comfortability -Satisfaction
2. Quality of Environment	-Urban Space -Historical Space
3. Economics	-Progress
4.Social Concepts	-Social Cooperation
5. Spirituality	-God Satisfaction
6. Cultural Identity	-Cultural Background

Source: Barati N. (1996)

Table (1.3) shows the proportion of constructs relating to each of these identified groups. We can see that 'quality of life' is the most frequently mentioned criterion for the interviewees when evaluating the built environment, in that about 50% of the responses were connected

to this issue.

Table (1.3) - Ratio of Responses based on General Category

	Information Classification	Ratio
A	Quality of Life	45.4%
B	Quality of Environment	28.7%
C	Economics	9.7%
D	Social concepts	7.1%
E	Spirituality	5.1%
F	Cultural Identity	4%

Source: Barati N. (1996)

What this table shows is the proportion of statements which were made by the interviewees when talking about the built environment and its associational issues. According to this table people were basically concerned about the quality of life in relation to the built environment, (45.4% of all the statements). The significant point here is that people tend to assess their environment according to subjective criteria, not those criteria to do with measurement, scale, geometry etc, i.e. not according to the formal rules typically used by planners and designers (see Whitfield 1994).

The most significant point of this section of the survey is that people do not pay much attention to simple objects or physical phenomena when thinking about the environment, but they do have some perceptual associations between objective and subjective things in the environment. For example, they believe that there is a relationship between physical objects such as the house, and subjective notions such as religion, social relations and spirituality.

1.4. Computer Analysis

In this part, using the repertory grid analysis, the target is to show how Tehran`s dwellers perceive and evaluate the environment. The way they associate the physical environment with other aspects was also examined.

The aim is not to show what kind of built form the city dwellers in Tehran prefer. What is significant in this research is to demonstrate how people perceive and evaluate their environment. To fulfill this target three facilities will be used from the above mentioned package: correlation tables, diagram of analysis of components based on rotated results and varimax rotated components. Other properties of this technique were not used in this survey because they are related directly to an analysis of the preferences themselves rather than an investigation into the relationships and associations linked to the preferences which is the main concern in this survey; (for example, rather than analysing 'urban' or 'house', which might be stated preferences, in relation to each other, this research is concerned with the aspects such as 'peaceful' or 'traditional' which underlie the respondent's preferences associated with 'urban' or 'house'). It should also be noted at this stage that the aim of the research did not include the drawing up of users' typologies, or the cross-referencing of users' preferences.

1.4.1. General Overview

In order to get a general understanding of the overall patterns in the total data set, the results of each of the four subgroups of respondents were subjected to Principal Component Analysis (see Appendix 1). This technique examines all the intercorrelations in the data and reduces the complexity of the total construct network to a smaller set of components or

groups such that each group is relatively independent of the others. This data reduction simplifies the overall picture of the data set and allows more general considerations to be drawn from it. Intercorrelations between constructs are found by examining how constructs fall within a given component or group, and the degree to which they correlate. In the purpose of the groupings, constructs correlated at 0.7 or greater with the principal components were taken as representative of the component.

In the analysis, the principal components were determined with a default value set at 1.0 (i.e. each component accounts for the mean variance expected from all the understood constructs). A varimax rotation was carried out to further simplify the data structure.

The full set of varimax rotated components is shown in tables (1.4, 1.6, 1.8 and 1.10). The significant components (measuring greater than 0.7) are highlighted here. This computer analysis was then compared with the categories which emerged from the manual classification (see page 40) in tables (1.5, 1.7, 1.9 and 1.11). The reason for this was to verify that the general classifications achieved by a manual method were relevant for each group.

Table (1.4) Varimax Rotated Components - Men (Apartment)

POLE	/CONTRAST	VBL.	1	2	3	4	5	6	7	8	DIST.
more success	/less success	1	0.755	-0.386	-0.169	-0.103	0.307	0.196	-0.243	0.194	0.994
no happiness	/happiness	2	-0.255	-0.274	-0.671	0.073	-0.173	-0.336	-0.064	0.444	0.970
urban spaces	/rural spaces	3	**-0.828**	-0.147	0.217	-0.185	0.133	0.272	0.144	0.246	0.981
closed spaces	/open spaces	4	-0.368	-0.275	0.207	0.367	0.020	-0.580	-0.435	0.173	0.971
efficiency	/no efficiency	5	0.479	-0.128	-0.372	-0.121	-0.012	0.228	-0.705	0.050	0.975
closed spaces	/open spaces	6	-0.689	-0.357	-0.262	0.286	-0.062	-0.258	0.168	0.023	0.923
private spaces	/common spaces	7	0.149	-0.098	-0.060	**0.780**	-0.024	0.073	-0.181	0.534	0.984
mixed with nature	/artificial environment.	8	**0.878**	-0.296	0.049	0.066	-0.227	-0.085	0.132	0.056	0.972
peace in mind	/no peace in mind	9	0.101	0.067	**0.854**	0.034	-0.238	0.320	-0.071	-0.037	0.955
god satisfaction	/no god satisfaction	10	**0.893**	-0.086	0.207	-0.103	-0.169	0.160	-0.014	0.056	0.957
residential	/not residential	11	-0.256	0.046	-0.206	0.878	-0.281	0.044	0.157	0.037	0.994
no confidence	/confidence	12	-0.340	-0.030	-0.107	-0.332	**0.843**	-0.118	0.055	0.073	0.986
no progress	/progress	13	**0.891**	0.007	-0.314	0.197	-0.067	0.034	0.042	-0.058	0.971
sustainability	/no sustainability	14	-0.383	0.671	0.245	0.024	0.078	-0.032	-0.329	-0.421	0.974
private space	/common space	15	0.137	-0.034	0.204	**0.935**	-0.040	-0.037	0.055	-0.121	0.978
less energy wasting	/more energy wasting	16	0.135	0.102	**-0.893**	-0.115	0.102	0.161	0.042	-0.258	0.971
traditional environment.	/modern environment	17	**0.802**	-0.422	0.212	0.155	-0.043	-0.063	-0.192	-0.066	0.969
closed space	/open space	18	0.078	-0.201	-0.159	**0.872**	0.113	-0.187	-0.027	-0.041	0.940
no illness	/illness	19	**0.946**	-0.000	0.092	-0.117	0.107	0.067	0.003	0.223	0.991
no anxiety	/anxiety	20	-0.570	0.268	0.631	-0.151	0.087	0.143	0.107	-0.092	0.930
villa houses	/apartments	21	0.240	-0.273	**0.719**	0.337	0.317	-0.082	0.289	-0.105	0.982
wet region	/arid region	22	0.243	0.353	0.109	-0.449	0.464	0.484	0.315	-0.089	0.976
hope	/disappointment	23	-0.583	0.286	0.655	-0.277	0.076	0.031	0.162	0.099	0.985
wet region	/arid region	24	-0.116	**0.754**	0.057	-0.155	0.085	0.237	0.013	-0.094	0.826
simplicity	/complexity	25	**0.834**	-0.072	0.236	0.009	-0.100	0.400	0.124	-0.091	0.975
no safety	/safety	26	0.231	-0.663	-0.275	0.297	0.141	-0.205	-0.250	-0.190	0.904
no perfection	/perfection	27	-0.003	-0.308	**-0.768**	0.193	0.485	-0.145	-0.043	-0.026	0.990
historical building	/modern building	28	0.605	-0.499	-0.037	-0.316	-0.306	-0.334	0.143	-0.014	0.970
green space	/no green space	29	0.762	0.105	0.177	-0.492	0.258	0.221	-0.010	0.025	0.991
peace in mind	/no peace in mind	30	0.424	-0.353	0.640	-0.098	-0.127	-0.370	-0.175	0.051	0.954
illness	/health	31	-0.411	-0.034	-0.405	0.144	-0.566	0.066	0.456	0.283	0.984
open space	/closed space	32	-0.002	0.509	0.128	-0.008	0.023	0.736	-0.080	-0.349	0.973
more activity	/less activity	33	-0.008	**0.929**	-0.051	-0.051	0.095	-0.221	0.101	0.023	0.968
recreational spaces	/non recreational spaces	34	0.131	0.150	**0.813**	-0.284	0.264	-0.083	0.076	-0.319	0.983
urban spaces	/rural spaces	35	-0.791	0.212	0.071	-0.285	0.069	-0.148	0.264	0.298	0.971
historical building	/non historical building	36	0.257	-0.454	0.126	-0.160	-0.776	-0.210	0.035	0.071	0.983
more human relation	/less human relation	37	0.191	-0.137	0.034	-0.053	-0.019	0.844	-0.127	0.193	0.908
%VARIANCE			27.165	12.211	16.417	12.546	7.858	8.457	4.600	3.986	93.241

Table (1.5) - General Categories and Groups' Significant Associational Constructs - Men (Apartment)

General categories from all respondents	Associational constructs for Men-Flats group
Quality of life	Recreation - Satisfaction - Peace in mind - Confidence
Quality of environment	Urban - Modern - Traditional - Rural - Nature - Historic - Non historic - Open - Closed - Residential - Non residential - Humanistic - Safety - Arid -Wet
Economics	Progress - Work
Social concepts	Private - Public
Spirituality	Spirituality - Values -
Cultural identity	

Source: Barati N. (1996)

Table (1.6) Varimax Rotated Components - Women (Apartment)

POLE	/CONTRAST	VBL.	1	2	3	4	5	6	7	8	DIST.
old spaces	/new spaces	1	0.939	-0.088	0.016	-0.134	-0.079	0.143	-0.079	-0.046	0.971
working possibility	/no working possibility	2	0.301	-0.271	0.303	-0.545	-0.362	-0.066	0.028	0.276	0.875
open space	/closed space	3	0.091	-0.009	0.891	0.152	-0.065	-0.130	0.046	0.288	0.965
more activities	/less activities	4	-0.221	0.092	-0.090	-0.888	0.002	-0.152	-0.189	-0.112	0.962
no cruelty	/cruelty	5	-0.461	0.378	-0.165	0.281	0.336	-0.381	0.427	0.153	0.962
traditional architecture	/modern architecture	6	0.859	-0.039	0.304	0.234	-0.126	0.099	0.004	-0.202	0.976
high ceiling	/low ceiling	7	0.136	0.768	-0.101	0.137	-0.141	-0.024	0.001	0.191	0.833
not to solve problems	/to solve problems	8	0.070	0.115	0.015	-0.058	-0.025	0.024	-0.932	0.249	0.976
healthy weather	/no healthy weather	9	0.455	0.311	0.294	-0.747	0.120	-0.025	0.040	-0.068	0.985
beauty	/no beauty	10	-0.645	0.152	0.113	-0.215	0.506	0.011	-0.167	-0.301	0.934
tranquillity	/no tranquillity	11	0.005	0.888	-0.324	-0.144	-0.033	0.120	-0.065	0.119	0.974
working possibility	/no working possibility	12	0.257	-0.226	-0.078	-0.046	0.343	-0.393	0.244	-0.706	0.978
no safety	/safety	13	0.560	-0.319	-0.025	0.161	-0.324	0.570	0.090	0.079	0.941
wet region	/arid region	14	0.202	0.041	0.746	-0.480	-0.010	-0.018	-0.130	-0.065	0.922
more prosperity	/less prosperity	15	0.785	0.353	-0.269	-0.021	0.275	-0.126	0.098	0.109	0.963
god remembrance	/no god remembrance	16	0.083	0.282	0.272	0.195	0.099	-0.197	-0.030	0.852	0.987
no tranquillity	/tranquillity	17	0.763	-0.160	0.404	-0.182	-0.128	0.204	-0.171	0.249	0.977
health	/no health	18	0.092	0.679	0.471	-0.382	-0.153	-0.302	-0.163	0.111	0.995
outer space	/inner space	19	0.094	-0.240	0.530	-0.209	0.197	-0.626	0.384	0.023	0.984
bright space	/dark space	20	-0.051	0.248	0.090	0.147	0.466	-0.097	0.698	0.168	0.914
no easy life	/easy life	21	0.803	-0.123	0.173	-0.375	-0.176	-0.089	0.262	0.168	0.983
not boring environment.	/boring environment.	22	-0.434	0.667	-0.037	-0.083	0.117	-0.095	0.261	0.138	0.867
loneliness	/no loneliness	23	0.074	-0.052	-0.027	-0.418	-0.604	0.275	-0.472	-0.224	0.947
no safety	/safety	24	0.128	0.229	0.339	0.145	-0.519	0.521	0.196	0.078	0.889
desires achievement	/no desires achievement	25	-0.481	0.786	0.176	-0.009	0.201	0.080	0.096	-0.071	0.970
cultural consciousness	/no cultural conscious	26	0.724	0.178	0.495	0.341	-0.081	0.024	-0.154	-0.080	0.977
pollution	/no pollution	27	0.093	-0.650	-0.188	0.270	0.038	-0.152	0.316	-0.074	0.818
closed space	/open space	28	0.120	0.047	-0.152	-0.126	-0.006	0.939	0.047	-0.231	0.997
no assessment possibility	/assessment possibility	29	0.676	-0.301	0.584	-0.091	-0.078	0.163	0.023	-0.207	0.986
independency	/dependency	30	-0.200	0.827	-0.050	-0.214	0.108	0.386	0.140	0.047	0.977
perfection	/no perfection	31	0.328	0.396	-0.214	-0.495	-0.088	-0.271	0.100	0.543	0.970
crowded area	/not crowded area	32	-0.041	-0.289	-0.075	0.167	0.884	-0.048	0.189	-0.185	0.986
correct principles	/not correct principles	33	0.768	-0.496	0.210	-0.207	-0.022	0.081	-0.085	0.103	0.973
healthy weather	/no healthy weather	34	0.299	0.426	0.047	-0.774	0.090	0.181	-0.081	-0.141	0.969
thinking possibility	/no thinking possibility	35	-0.356	0.254	0.025	-0.216	0.830	-0.115	0.114	0.051	0.978
help to others	/not to help to others	36	-0.073	-0.089	-0.097	-0.450	0.063	-0.690	0.306	-0.349	0.959
saving time	/wasting time	37	-0.054	0.495	0.033	-0.483	-0.069	0.544	-0.246	0.301	0.967
comfort life	/no comfort life	38	-0.813	0.077	0.072	0.359	0.077	0.072	0.111	0.042	0.909
historical building	/non historical building	39	0.710	0.042	0.053	0.165	-0.529	-0.351	-0.106	-0.009	0.975
external spaces	/internal spaces	40	0.142	-0.325	0.567	-0.059	0.045	-0.612	0.291	0.175	0.971
%VARIANCE			21.277	15.430	9.690	11.518	9.235	10.397	7.003	6.551	91.101

Table (1.7) - General Categories and Groups` Significant Associational Constructs - Women (Apartment)

General categories from all respondents	Associational constructs for Women-Flats group
Quality of life	Goals - Tranquillity - Dependency - Easy life - Comfortability - Correct living
Quality of the environment	Traditional - Urban - Old - New - High rise - Low rise -Open - Closed - Climate - Quietness -
Economics	Activities - Progress
Social concepts	Crowdedness
Spirituality	Meanings - Spirituality
Cultural identity	Culture

Source: Barati, N. (1996)

Table (1.8) Varimax Rotated Components - Men (House)

POLE	/CONTRAST	VBL.	1	2	3	4	5	6	7	8	DIST.
not modern life	/modern life	1	0.605	-0.073	-0.134	-0.443	-0.363	0.262	0.303	-0.076	0.940
not to like life	/to like life	2	-0.379	0.544	0.315	0.111	0.085	0.004	0.063	0.610	0.967
not better life	/better life	3	0.407	0.156	-0.144	0.179	0.251	-0.040	0.788	0.193	0.983
no life usage	/life usage	4	-0.159	0.878	0.054	0.094	-0.070	0.244	-0.199	-0.137	0.965
historical spaces	/non historical spaces	5	0.801	-0.191	-0.147	0.080	-0.180	0.105	0.443	-0.204	0.994
stability	/no stability	6	0.359	-0.483	-0.452	0.506	0.166	-0.073	-0.323	0.027	0.980
peace in mind	/no peace in mind	7	-0.032	0.111	-0.054	0.228	-0.105	-0.795	0.068	0.063	0.849
welfare	/no welfare	8	0.082	-0.026	-0.051	0.945	-0.177	-0.100	0.036	-0.068	0.975
rural area	/not rural area	9	0.678	-0.386	-0.123	-0.117	0.078	-0.057	-0.341	0.409	0.965
no beauty	/beauty	10	0.049	0.181	0.113	0.539	-0.033	0.012	-0.600	0.369	0.914
no water	/water	11	-0.131	0.186	0.107	-0.059	-0.053	0.864	0.109	0.207	0.933
external space	/internal space	12	0.053	0.235	-0.844	-0.139	-0.057	-0.033	-0.184	-0.061	0.912
not eastern	/eastern	13	-0.712	0.204	-0.096	-0.114	0.383	0.093	-0.267	0.353	0.960
hard life	/better life	14	0.127	0.696	0.006	0.143	0.520	0.087	0.320	0.085	0.953
no tranquillity	/tranquillity	15	-0.321	0.373	0.448	0.227	0.605	0.057	0.185	0.121	0.956
crowded area	/not crowded area	16	-0.197	0.120	0.022	0.053	0.329	0.123	0.145	0.745	0.869
no correct methods	/correct methods	17	0.961	-0.077	-0.041	-0.016	-0.123	0.119	-0.130	0.016	0.989
adapted to traditions	/not adapted to traditions	18	0.027	-0.703	0.351	-0.365	-0.035	0.418	0.067	-0.181	0.982
tranquillity	/no tranquillity	19	0.056	-0.723	0.247	-0.303	0.102	0.043	-0.231	0.463	0.979
ability	/no ability	20	0.830	-0.279	-0.210	-0.067	-0.020	-0.189	0.269	0.212	0.985
no green spaces	/green spaces	21	-0.153	0.398	0.108	-0.080	-0.047	-0.006	0.770	0.035	0.892
internal spaces	/external spaces	22	-0.087	0.060	0.845	0.040	-0.184	0.357	-0.263	0.088	0.982
arid region	/wet region	23	-0.087	0.060	0.845	0.040	-0.184	0.357	-0.263	0.088	0.982
open spaces	/closed spaces	24	-0.686	-0.142	-0.265	0.056	-0.124	0.511	0.156	-0.047	0.931
wrong principles	/correct principles	25	0.851	0.007	0.213	-0.287	-0.182	0.150	0.117	-0.101	0.965
free will	/fatalism	26	0.363	-0.288	0.239	0.032	-0.631	-0.095	-0.191	-0.400	0.936
no happiness	/happiness	27	-0.153	0.420	0.059	0.673	0.296	-0.409	0.160	0.021	0.968
working possibility	/not working possibility	28	-0.948	-0.035	0.008	-0.092	-0.074	0.056	0.084	0.264	0.997
same way of thinking	/no same way of thinking	29	0.208	-0.814	-0.019	0.062	-0.180	0.009	-0.138	-0.238	0.905
green spaces	/not green spaces	30	0.006	-0.244	-0.776	0.008	-0.154	0.259	-0.136	0.159	0.892
no life usage	/life usage	31	0.907	-0.133	-0.275	0.041	0.092	-0.020	-0.020	0.115	0.970
order in life	/no order in life	32	-0.932	0.041	0.054	-0.155	-0.142	0.094	0.181	0.022	0.980
dejection	/joy	33	-0.131	-0.119	0.812	-0.241	-0.164	-0.247	0.017	0.385	0.992
no comfort	/comfort	34	-0.172	0.684	0.135	-0.202	-0.070	-0.159	0.293	0.281	0.866
residential area	/not residential area	35	0.038	-0.059	0.293	0.595	-0.154	-0.078	-0.128	0.682	0.977
talent manifestation	/no talent manifestation	36	-0.741	0.170	0.271	-0.136	0.148	0.035	-0.320	0.252	0.927
correct choices	/not correct choices	37	-0.043	0.173	0.184	0.131	-0.940	0.074	0.055	-0.022	0.988
not arid region	/arid region	38	-0.457	-0.184	-0.127	0.065	-0.025	-0.262	-0.588	-0.518	0.972
not urban area	/urban area	39	0.670	-0.215	-0.014	-0.393	-0.425	-0.183	0.113	-0.059	0.938
no apartments	/apartments	40	0.463	-0.358	-0.116	-0.568	-0.388	0.269	0.022	-0.232	0.978
%VARIANCE			24.343	13.430	11.901	9.150	8.074	7.169	8.593	8.162	90.820

Table (1.9) - General Categories and Groups` Significant Associational Constructs - Men (House)

General categories from all respondents	Associational constructs for Men-Houses group
Quality of life	Welfare - Peace in mind - tranquillity - Comfortability - Appropriateness - Life quality
Quality of the environment	Historical - Western - Eastern - Nature - Traditional - Internal - External - Order -Arid - Wet
Economics	Work - Abilities
Social concepts	
Spirituality	Values
Cultural identity	

Source: Barati, N.(1996)

Table (1.10)- Varimax Rotated Components - Women (House)

POLE	/CONTRAST	VBL.	1	2	3	4	5	6	7	8	DIST.
working possibility	/no working possibility	1	0.758	0.191	0.061	-0.248	0.238	-0.248	-0.063	-0.073	0.896
not good architecture	/good architecture	2	0.412	-0.155	0.049	0.073	0.210	0.290	0.023	-0.644	0.863
no safety	/safety	3	0.264	-0.104	-0.159	0.877	-0.288	-0.044	0.077	0.075	0.986
no sustainability	/sustainability	4	0.126	-0.131	-0.523	-0.078	-0.801	0.037	0.010	0.018	0.978
no beauty	/beauty	5	-0.314	0.075	0.253	0.376	-0.024	0.066	0.799	-0.061	0.978
welfare	/no welfare	6	-0.787	0.179	-0.153	-0.088	-0.098	0.174	0.361	0.334	0.982
no juiciness	/juiciness	7	0.291	0.744	0.182	0.427	-0.106	-0.169	-0.232	0.005	0.973
no culture	/culture	8	-0.090	0.091	0.061	0.274	-0.022	0.200	0.089	0.695	0.792
rural area	/urban area	9	0.944	-0.144	0.009	0.002	0.001	-0.035	-0.029	0.023	0.957
no nature understanding	/nature understanding	10	-0.219	0.622	0.047	0.085	-0.504	-0.041	0.118	0.105	0.852
not to manage life	/to manage life	11	0.039	0.082	0.055	0.002	0.020	-0.009	-0.971	-0.137	0.987
no goals achievement	/goals achievement	12	0.430	-0.186	-0.114	-0.072	-0.165	-0.711	-0.073	0.231	0.910
no bright future	/bright future	13	-0.103	0.678	0.011	0.107	0.179	-0.008	0.399	0.480	0.951
not good landscape	/good landscape	14	-0.348	0.774	-0.195	-0.336	0.040	0.262	0.046	0.192	0.990
old buildings	/new building	15	0.681	0.042	-0.069	0.238	-0.490	-0.017	-0.316	-0.124	0.939
progress	/no progress	16	-0.860	0.003	0.004	-0.033	0.150	0.316	0.215	0.235	0.982
no culture	/culture	17	0.176	0.370	0.622	-0.346	0.029	-0.378	0.203	0.091	0.932
open spaces	/closed spaces	18	0.279	-0.704	0.340	0.207	-0.071	-0.015	0.344	-0.268	0.963
not planed area	/planed area	19	0.212	0.054	0.040	-0.852	-0.159	-0.086	-0.255	-0.042	0.935
no relaxation	/relaxation	20	0.914	0.220	-0.064	-0.128	0.161	0.029	0.073	-0.111	0.974
health	/no health	21	-0.209	-0.839	-0.268	0.308	-0.063	-0.015	-0.179	0.063	0.977
independency	/dependency	22	-0.061	-0.050	-0.914	-0.124	-0.166	-0.076	0.036	0.107	0.951
god satisfaction	/no god satisfaction	23	-0.500	-0.137	0.110	0.021	0.696	0.175	-0.024	0.211	0.917
natural environment	/no natural environment	24	0.396	-0.662	-0.011	0.522	0.185	0.040	-0.120	-0.213	0.981
no safety	/safety	25	0.656	0.188	0.167	-0.305	-0.410	0.244	0.233	0.100	0.937
not easy working	/easy working	26	0.437	0.763	-0.284	0.054	-0.088	0.041	-0.248	-0.142	0.974
comfort life	/no comfort life	27	0.110	0.006	-0.147	0.003	0.771	-0.096	0.001	-0.465	0.923
no luxury	/luxury	28	0.574	0.237	-0.139	-0.348	-0.278	0.127	0.167	0.529	0.963
low income	/high income	29	0.493	-0.018	0.451	0.024	0.136	0.592	-0.056	0.269	0.944
open space	/closed space	30	-0.068	0.608	0.156	0.047	0.434	0.565	0.154	-0.183	0.983
no spirituality	/spirituality	31	-0.128	0.065	-0.049	-0.120	-0.171	0.777	0.002	0.177	0.838
illness	/health	32	0.202	0.859	0.279	-0.192	-0.009	0.199	-0.090	0.077	0.973
no efficiency	/efficiency	33	0.780	0.210	-0.319	0.265	-0.248	0.150	-0.125	-0.085	0.964
no facilities	/facilities	34	-0.859	0.315	-0.054	-0.210	0.084	0.181	0.185	-0.078	0.982
no welfare	/welfare	35	0.961	-0.029	0.073	0.120	-0.127	-0.059	0.081	-0.021	0.985
good weather	/not good weather	36	0.124	-0.463	0.194	0.727	0.196	-0.266	-0.046	0.256	0.987
intensive area	/not intensive area	37	-0.371	-0.065	0.698	-0.291	-0.137	0.376	0.154	0.217	0.972
%VARIANCE			24.953	16.743	8.140	10.122	8.805	7.539	7.166	6.596	90.063

Table (1.11) - General Categories and Groups` Significant Associational Constructs - Women (House)

General categories from all respondents	Associational constructs for Women-Houses group
Quality of life	Health - Welfare - Relaxation - Dependency Joyfulness -
Quality of the environment	Rural - Urban
Economics	Work - Progress
Social concepts	crowdedness
Spirituality	Meanings - Spirituality
Cultural identity	Culture

Source: Barati, N. (1996)

1.4.2. Correlation Tables

At the time that this survey was developed there were technical limitations involved. The situation did not allow for all the information about all the constructs generated to be put into the repertory grid package on the computer. This limitation allowed only fifty constructs in total to be incorporated in the software whereas there were more than 1000 constructs generated by the whole group. It was, therefore, necessary to divide the group into sub-groups. To cope with this problem interviewees were divided to four groups according to sex and type of residence (Table 1.1).

The search for general and shared ideas involved the use of the table of varimax rotated components where all the constructs and their values are classified in different components for each individual. The total variance of each column, component, is measured (see tables 1.4, 1.6, 1.8, and 1.10). According to this technique every component which has a higher percentage of the total variance is significant. This follows from Kelly's assumption that constructs with the greatest discrimination (i.e. variance) are most useful to us. The idea is to find out the most important construct for each individual and then to put all of them together. The generated table from these most significant constructs in this way created a general data base about the main ideas in any sub-group. This data was used in all computing analysis in this survey.

A "correlation table" is one way to show the relation between different factors. As the main objective of this survey was to examine people's perception of their environment, these correlation tables concentrated on constructs addressing environmental issues (key constructs) and their relation to other constructs, for instance, the relationship between house and economy. Results relating to, for example the relationship between economy and social

life and not directly involving the environment, were ignored. A positive or negative correlation measuring between 0.70 and 1.00 was taken in this analysis as meaningful in statistical terms. The results are four tables in which the correlation between key constructs and the rest of the constructs in this research are presented, where the correlation is greater than 0.7.

There are some factors that should be borne in mind about the cultural background of the interviewees before analysis of this data. Many of the answers given during the interviews would be surprising for an Iranian while for Europeans, for example, the same comments might seem quite natural. For instance the need for a house to have some possibility for 'God Satisfaction' is considered as very important by Iranian Moslems. God satisfaction is the ability to be as close to Islamic values of the ideal house, place or person, as possible. It is a value within Islam which every person is aware of and contributes towards. A house without God satisfaction therefore is one offering no possibility of fulfilling a part of everyday life to an Iranian Moslem, while to a European the notion of the home having some relevance to God is not a usual requirement. Other differences in cultural understanding will surround the concepts of 'nature', 'welfare', 'health', 'success' and 'tranquillity', and the reader should be aware of these cultural differences from the start.

It is also worth adding here a reminder that the constructs and concepts are each one of pairs, which are in opposition to each other and which have been accorded the status of 'preferred' or 'not preferred' and 'positive' or 'negative'. Therefore when the following analysis mentions a cluster of concepts around one 'negative' construct, it is the interviewee who has stated that this particular construct is not preferred, and should not be considered as a value judgment on behalf of the researcher.

Results of the correlation tables and their analysis is given for each group below:

1.4.2.1. Men (Apartment Dwellers)

Table (1.12) presents the most important constructs made by men living in apartments in Tehran. Table (1.13) shows the correlation between this group's key constructs and the other relevant constructs.

In the case of 'Men-Apartments' the meaningful correlations are:

* Constructs (3 and 35) urban/rural in this table have the associations of urban spaces with 'progress', 'artificial environment', 'no God satisfaction', 'modern', 'hope', and 'complexity'; and by contrast, rural areas are correlated with 'no progress' 'natural environment', 'God satisfaction', 'traditional', 'disappointment', and 'simplicity'. In other words the symbol of progress and modernisation, the city, is considered as both artificial and contrasting with nature, as well as providing no God satisfaction.

* The construct 'mixed with the nature /artificial' is also correlated with 'historical building / modern building' 'no illness / illness'.

* The 'residential spaces' construct in line 11 is correlated with 'private, and 'closed' spaces whereas the construct 'villa houses/apartments' are not associated meaningfully with the other constructs;

* In line 17, the construct 'traditional environment/modern environment', is correlated to 'mixed with nature / artificial', 'rural / urban', 'more success / less success', 'God satisfaction / no God satisfaction', 'no illness / illness', and 'peace in mind / no peace in mind'. Here again

we face a strong tendency to set traditional spaces against modern ones because the traditional environment is correlated to the concepts of 'mixed with nature', 'more success', 'God satisfaction', 'no illness', and 'peace in mind'.

* The 'green space' construct in line 29 is associated with 'open spaces', 'God satisfaction', 'no residential', ' no illness', and 'simplicity'.

Some very important points can be drawn from these correlations.

Firstly, for this group, we can see that traditional and historical environments are frequently considered to be closer to nature and to rural spaces and are often associated with spirituality (i.e. God satisfaction) and health, but they are considered to be far from progress. Meanwhile, urban modern environments are seen as artificial and associated with illness and lack of spirituality but correlated with 'progress'.

Secondly, the modern environment is largely associated with negative constructs.

Thirdly, with regard to nature, this group highlights an important element of the man-built environment interrelationship. This group lives in the large city of Tehran where at the present time there are only 1.5 square metres green space per head. At the same time this group believes that an appropriate built environment should have an interrelation with nature but also does not believe that cities can offer this kind of environment. They therefore see their need for a relationship with nature to be constrained if not negated by their urban environment.

Table (1.12) - The list of Constructs for Men (Apartment Dwellers)

POLE	/CONTRAST	VBL.
more success	/less success	1
no happiness	/happiness	2
urban spaces	/rural spaces	3
closed spaces	/open spaces	4
efficiency	/no efficiency	5
closed spaces	/open spaces	6
private spaces	/common spaces	7
mixed with nature	/artificial envi.	8
peace in mind	/no peace in mind	9
god satisfaction	/no god satisfaction	10
residential	/not residential	11
no confidence	/confidence	12
no progress	/progress	13
sustainability	/no sustainability	14
private space	/common space	15
less energy wasting	/more energy wasting	16
traditional envi.	/modern environment	17
closed space	/open space	18
no illness	/illness	19
no anxiety	/anxiety	20
villa houses	/apartments	21
wet region	/arid region	22
hope	/disappointment	23
wet region	/arid region	24
simplicity	/complexity	25
no safety	/safety	26
no perfection	/perfection	27
historical building	/modern building	28
green space	/no green space	29
peace in mind	/no peace in mind	30
illness	/health	31
open space	/closed space	32
more activity	/less activity	33
recreational spaces	/non recreational spaces	34
urban spaces	/rural spaces	35
historical building	/non historical building	36
more human relation	/less human relation	37
		Total

Table (1.13) - Correlations between Key Constructs and the Other Constructs (Men-Apartments)

K.C > C.C v	3	8	11	17	21	28	29	35	36
3		-0.73						0.76	
6							-0.85		
8								-0.72	
10		0.83		0.78			0.77	-0.72	
11							-0.73		
13	-0.88	0.83						-0.79	
15			0.75						
17	0.74	0.84						-0.8	
18			0.7						
19		0.81		0.72			0.85		
23								0.73	
25		0.72		0.73			0.71	-0.71	
28		0.74							0.73
29									
30				0.73					

Source: Barati, N.(1996)

1.4.2.2. Women (Apartment Dwellers)

Table (1.14) presents the most important constructs for ten female dwellers who have lived for at least five years in apartments in Tehran. Table (1.15) shows the correlation between this group's key constructs and the other relevant constructs. According to the table the most signficant constructs and their correlations are:

* The first pole of construct 1 'old spaces/new spaces', 'old spaces' is associated with 'traditional', 'cultural consciousness', 'no possibility of assessment', 'historical buildings', 'correct principles', 'tranquillity', 'crowded', 'no easy life', and 'no comfort life'. The 'new spaces' pole of the same construct, is associated with the concepts of 'modern', 'no cultural consciousness', 'possibility of assessment', 'non historical building', 'not correct principles', 'no tranquillity', 'not crowded', 'easy life', and 'comfort life' and 'not boring environment'. The first pole of the construct 'not boring environment/boring environment' in line 22 is associated with the 'desired achievement', and 'independence'.

* In line 39, historical buildings, the first pole of construct, 'historical buildings/ not historical buildings' are integrated with, 'traditional architecture', 'no beauty' and 'no thinking possibility'.

There is, therefore, an obvious difficulty for this group in terms of ideals and preferences in their evaluation of the built environment. The major problem for this group is that neither type of built environment is enough to satisfy their needs and hence they have no certainty about preference of 'traditional' and 'modern'. Here, for example, tradition, historic, old, cultural consciousness, and correct principles are considered as interrelated while the

Table (1.14) - The list of Constructs for Women (Apartment Dwellers)

POLE	/CONTRAST	VBL.
old spaces	/new spaces	1
working possibility	/no working possibility	2
open space	/closed space	3
more activities	/less activities	4
no cruety	/cruety	5
traditional architecture	/modern architecture	6
high cieling	/low cieling	7
not to solve problems	/to solve problems	8
healthy weather	/no healthy weather	9
beauty	/no beauty	10
tranquility	/no tranquility	11
working possibility	/no working possibility	12
no safety	/safety	13
wet region	/arid region	14
more prosperity	/less prosperity	15
god remembrance	/no god remembrance	16
no tranquility	/tranquility	17
health	/no health	18
outer space	/inner space	19
bright space	/dark space	20
no easy life	/easy life	21
not boring environment	/boring environment	22
loneliness	/no loneliness	23
no safety	/safety	24
desires achievement	/no desires achievement	25
cultural consciousness	/no cultural consciouss	26
pollution	/no pollution	27
closed space	/open space	28
no assessment possibility	/assessment possibility	29
independency	/dependency	30
perfection	/no perfection	31
crowded area	/not crowded area	32
correct principles	/not correct principles	33
healthy weather	/no healthy weather	34
thinking possibility	/no thinking possibility	35
help to others	/not to help to others	36
saving time	/wasting time	37
comfort life	/no comfort life	38
historical building	/non historical building	39
external spaces	/internal spaces	40
		Total :

Table (1.15) - Correlations between Key Constructs and the Other Constructs (Women-Apartments)

K.C > C.C V	1	6	22	32	39
6	**0.86**				
17	**0.76**				
21	**0.80**				
25			**0.82**		
26		**0.90**			
29	**0.72**	**0.83**			
30			**0.72**		
33	**0.85**	**0.70**			
35					**-0.70**
38	**-0.77**				
39		**0.70**			

Source: Barati N. (1996)

environments which provide those qualities are restrictive and not easy. The physical comforts of the modern built environment are compromised by a lack of cultural values and correct principles. In this situation it might be hard to adapt to the environment and communicate with it.

Also there is the correlation of historical buildings with no beauty despite their association with tranquillity and correct principles. The question here is why is there a strong negative correlation between historic or traditional architecture and these very positive aspects?

The separation between objective - that is, 'real' objects in the world - and subjective - ideas or personal feelings - in the environment could be a reason for this contradiction about these factors. This will be examined in later chapters.

1.4.2.3. Men (House Dwellers)

Table (1.16) presents the most important constructs which are made by men living in houses in Tehran. Table (1.17) shows the correlation between this group's key constructs and the other relevant constructs. The most important and fruitful correlations in this table related to this research are:

* We note that 'historical spaces' in line 5 is related meaningfully with the concepts of 'not modern life', 'no correct principles', 'ability', 'Eastern', 'wrong principle', 'no working possibility', 'no life usage' and 'talent manifestation'.

* In line 13 the construct 'not Eastern/Eastern' associates the concept of Eastern with 'free

Table (16) - The list of Constructs for Men (House Dwellers)

POLE	/CONTRAST	VBL.
not modern life	/modern life	1
not to like life	/to like life	2
not better life	/better life	3
no life usage	/life usage	4
historical spaces	/non historical spaces	5
stability	/no stability	6
peace in mind	/no peace in mind	7
welfare	/no welfare	8
rural area	/not rural area	9
no beauty	/beauty	10
no water	/water	11
external space	/internal space	12
not eastern	/eastern	13
hard life	/better life	14
no tranquility	/tranquility	15
crowded area	/not crowded area	16
no correct methodes	/correct methodes	17
adapted to traditions	/not adapted to traditions	18
tranquility	/no tranquility	19
ability	/no ability	20
no green spaces	/green spaces	21
internal spaces	/external spaces	22
arid region	/wet region	23
open spaces	/closed spaces	24
wrong principles	/correct principles	25
free will	/fatalism	26
no happiness	/happiness	27
working possibility	/not working possibility	28
same way of thinking	/no same way of thinking	29
green spaces	/not green spaces	30
no life usage	/life usage	31
order in life	/no order in life	32
dejection	/juiciness	33
no comfort	/comfort	34
residential area	/not residential area	35
dehiscence of talent	/no dehiscence of talent	36
correct choices	/not correct choices	37
not arid region	/arid region	38
not urban area	/urban area	39
no apartments	/apartments	40
		Total

Table (17) - Correlation between Key Constructs and the Other Constructs (Men-Houses)

	5	9	13	16	18	30	35	39	40
1	**0.73**							**0.77**	**0.83**
5			**-0.86**						
9									
13									
15									**-0.71**
17	**0.77**	**0.74**	**-0.72**						
20	**0.82**	**0.7**							
25	**0.75**		**-0.7**					**0.78**	
26			**-0.72**						
27					**-0.71**				**-0.81**
28	**-0.76**		**0.73**						
31	**0.73**	**0.73**							
36	**-0.91**		**0.73**						
39									**0.80**

Source: Barati N. (1996)

will', and 'no talent manifestation'. Although there is a strong tendency for culture and identity to be admired, here some basic concepts in the environment are associated negatively with the concept of Eastern. This kind of disproval of 'self identity = Eastern' and acceptance of the concept of Western in its place is significant.

* In line 9 'rural area', on one hand, is associated with 'correct methods', and 'life usage', and on the other hand, with the concept of 'no ability'.

* In line 18 the first pole of construct 'adapted to the traditions/not adapted to tradition' is integrated with 'happiness'

* We also note that ' urban area' in line 39 is associated with 'modern life', 'correct principle', 'apartments', 'no tranquillity' and 'no happiness'.

* The concept of 'green space' in line 21 is correlated with the concept of 'comfortability'.
* For the concepts of 'crowded areas', 'green spaces' and 'residential areas' in lines 16, 30, and 35, there is no meaningful correlation with the rest of the constructs.

One can see people's uncertainty about the traditional and historic spaces, and it is important to note that 'Eastern' and 'talent manifestation' are closely linked with 'wrong principle' and 'no possibility to work'. This dualistic consideration of Eastern against Western is a more complex construct than simply East versus West because they are interrelated with the concepts of traditional and modern as well as no progress and progress. In other words, what is Eastern, traditional, Iranian, and so on is the symbol of retardation and vice versa.

1.4.2.4. Women (House Dwellers)

Table (1.18) presents the most important constructs which are made by women living in houses in Tehran. Table (1.19) shows the correlation between this group's key constructs and the other relevant constructs.

There are several constructs where, according to the case study, discriminations between apartments and traditional houses, are significant. They are as follows:

* In the line 9 construct 'rural area / urban area' is correlated to the 'no working possibility / working possibility', 'old building / new building', 'no progress / progress', 'no relaxation / relaxation', 'facilities / no facilities', 'no efficiency/efficiency', and finally, 'no welfare / welfare'. For this group, an obvious and fundamental contrast exists in terms of comparing urban and rural areas.

* We note that 'good landscape' in line 14 is associated with the concepts of 'open spaces', 'natural environment', and 'good climate'.

* Also 'old building', in line 15 for this group is associated with 'rural areas', 'no progress', 'no God satisfaction', and 'no efficiency', whereas 'new building' is associated with urban areas, 'progress', 'God satisfaction', and 'efficiency'.

* There is no meaningful correlation between the concepts 'good architecture/bad architecture', 'planned areas/not planned areas', and 'crowded areas/not crowded areas' with

Table (1.18) - The list of Constructs for Women (House Dwellers)

POLE	/CONTRAST	VBL.
working possibility	/no working possibility	1
not good architecture	/good architecture	2
no safety	/safety	3
no sustainability	/sustainability	4
no beauty	/beauty	5
welfare	/no welfare	6
no joy	/joy	7
no culture	/culture	8
rural area	/urban area	9
no nature understanding	/nature understanding	10
not to manage life	/to manage life	11
no goals achievement	/goals achievement	12
no bright future	/bright future	13
not good landscape	/good landscape	14
old buildings	/new building	15
progress	/no progress	16
no culture	/culture	17
open spaces	/closed spaces	18
not planed area	/planed area	19
norelaxation	/relaxation	20
health	/no health	21
independency	/dependency	22
god satisfaction	/no god satisfaction	23
natural environment	/no natural environment	24
no safety	/safety	25
not easy working	/easy working	26
comfort life	/no comfort life	27
no luxury	/luxury	28
low income	/high income	29
open space	/closed space	30
no spirituality	/spirituality	31
illness	/health	32
no efficiency	/efficiency	33
no facilities	/facilities	34
no wlfare	/welfare	35
good weather	/not good weather	36
intensive area	/not intensive area	37
		Total

Table (1.19) - The Correlations between Key Constructs with the Other Constructs (Women-Houses)

	2	9	14	15	19	24	37
1		0.71					
6		-0.78					
9				0.73			
14						-0.86	
15		0.73					
16		-0.78		-0.71			
18			-0.80				
20		0.77					
23				-0.75			
24			-0.86				
33		0.74		0.86			
34		-0.88					
35		0.91					
36			-0.70			0.70	

Source: Barati N. (1996)

the other constructs in this table. Again we see a certain duality in which the city has become the symbol of progress and the village the symbol of 'no progress' and 'no welfare'.

1.4.2.5. Summary of Correlation Table Analysis

Despite some differences between the groups mentioned above, there was general agreement between them in terms of their dualistic views about the built environment. In other words, apartment dwellers use the same means of evaluation of the environment as house dwellers (see the Correlation Tables in this Chapter). This is evidence that they are subject to the same cultural principles which act on them as a unifying entity. Of course one aspect of this cultural entity is the way in which the environment has developed itself and the extent to which it represents people's values and satisfies their needs.

The evidence presented so far suggests that there is a perceptual uncertainty about the built environment and its contents. People have shown that they are using a wide range of criteria in their assessment of the environment and it seems that Tehran`s modern urban environment is failing to meet a number of important ones. The correlations indicate that there is a 'mismatch' between man and the environment and also man and himself because he finds himself in a position of enduring what he hates in some way and rejecting something that he loves. For instance he believes in God but he believes that the built environment he is living in gives little possibility for developing his relationship with God. It is the same for other factors such as nature, cultural and national identity, and social relations.

One group of correlated concepts includes modern, urban spaces, apartments, new, artificial, progress, no God satisfaction, illness, welfare, Western, no tranquillity, no culture, correct methods and principles. Opposite to this lie concepts such as tradition, rural spaces, natural,

no progress, old, tranquillity, no welfare, God satisfaction, culture, Eastern, no illness, houses, wrong methods and principles, etc. This clash shows that some of the interviewees have come to associate themselves, as Eastern people, with retardation and no progress, and to associate progress with Western and no culture; this leads to the question, what then is Eastern development and progress? If, as this experimental examination shows, there is no complete, positive, and mutual communication between people and this kind of built environment how can the continuation of this condition lead society to a better life, or development?

No one can expect an integration between man and his environment under these conditions. It seems that, generally, there is too little process of exchange of quality between Tehran dwellers' value systems and their built environment.

1.5. Analysis Based on Rotated Data Diagrams

In these diagrams the first and second components, regarded as the most important components, taken from the varimax rotated components tables (Tables 1.4, 1.6, 1.8, 1.10) are examined in a 2-d spatial pattern. This pattern shows the relationship between concepts and pictures. The significance of these diagrams is that it is possible to see how the interviewees associated their different ideas with each other. It is possible therefore to examine how interviewees correlate photographs of various urban spaces and elements with their constructs about the built environment. Here again we find evidence of the emergence of contradiction and dualistic concepts.

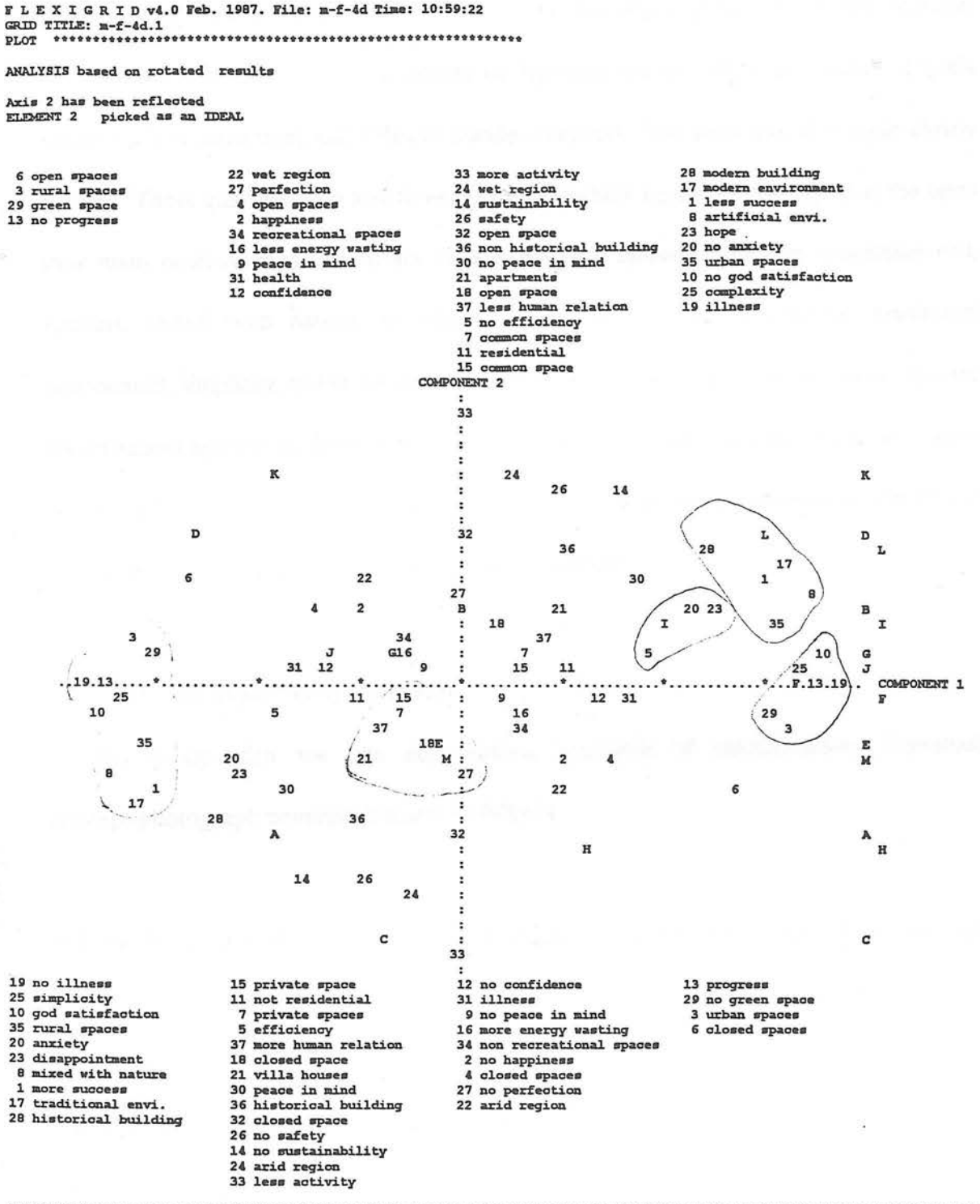
1.5.1. Men (Apartment Dwellers)

In Figure (1.2) we find some significant groups of concept/photograph combinations:

1) In the first quarter, concept numbers 1, 8, 17, 28, and 35 are all linked together with the picture (L) - (see pages 34-37). In other words, the apartment residence in a townscape is correlated with concepts 1(less success), 8(artificial environment), 17(modern environment), 28(modern buildings), and 35(urban spaces). There is also a combination of concepts 5, 20, and 23 with the picture (I). Therefore this picture is associated with concept 5(no efficiency), 20(no anxiety), and 23(hope). The last group includes picture (F) and numbers 3, 10, 13, 19, 25, and 29. Consequently, concepts 3(urban spaces), 10(no God satisfaction), 13(progress), 19(illness), 25(complexity), and 29 (no green space) are associated with each other and with this picture.

Contradictory perceptions about the built environment and its characteristics are obvious: urban space and the modern environment, although they are correlated with concepts such as progress, no anxiety, and even hope, are negatively associated with an artificial environment, no green space, illness, complexity, less success, and no God satisfaction. Pictures (L) and (I) in this diagram are placed, as we might expect, opposite pictures (M) and (E): i.e. Modern v Traditional.

Figure (1.2) - The Diagram of Rotated Data For Men (Apartment)



Source: Barati N. (1996)

2) There are two meaningful groups in the second and third quarters. The first brings together concepts 1(more success), 3(rural area), 13(no progress), 19(no illness), and 29(green spaces) 8(mixed with nature), 10(God satisfaction), 17(traditional environment), 25(simplicity), and 35(rural spaces). The second meaningful group of concepts includes pictures (E) and (M) with the concepts of 7(private space), 18(closed space), 21(villa houses), 27(no perfection), and 37(more human relations). The same duality is again clearly evident. These quarters, two and three, generally include negative aspects but at the same time many positive concepts surface here. Rural area, against urban area, associated with success, mixed with nature, no illness, green spaces, God satisfaction, traditional environment, simplicity, and at the same time these are placed close to 'no progress'. Houses are set against apartments. Houses are considered as closed space, private space, with more human relations but less perfection and completion. The positive and negative aspects are mixed up with contradictory and incongruent constructs.

1.5.2. Women (Apartment Dwellers)

In this group also we can see various examples of disorientation. Important concept/photograph combinations are as follows:

1) In the first quarter there are two signficant clusters. In the first one pictures B, I, and F are gathered together with concepts 1(new spaces), 5(no cruelty), 6(modern architecture), 10(beauty), 13(safety), 17(tranquillity), 21(easy life), 26(no cultural consciousness), 29(possibility of assessment), 33(not correct principles), 38(comfort life), and 39(no historical buildings). Thus, the modern urban environments are admired but at the same time associated with no correct principles, no cultural consciousness.

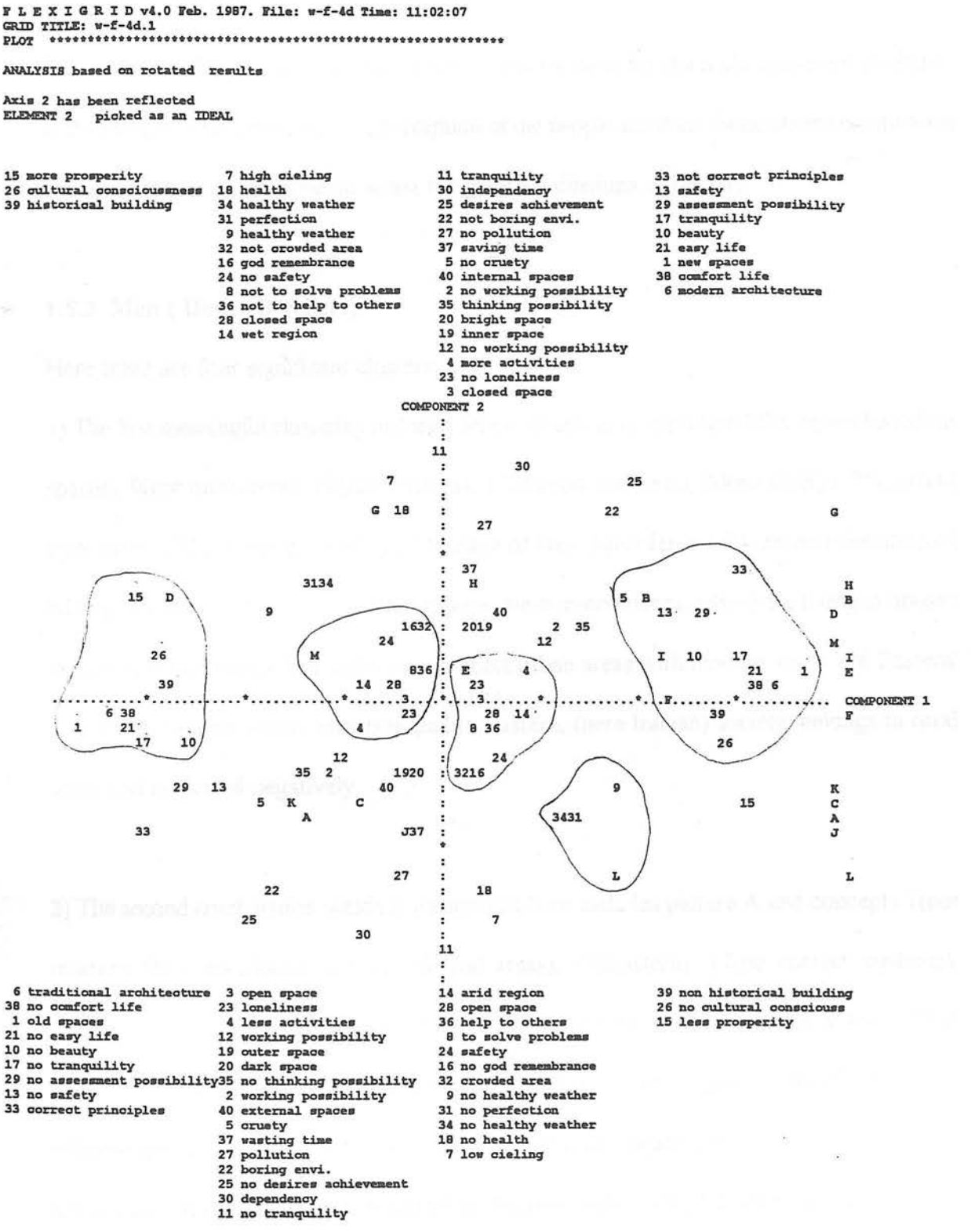
2) The second cluster in this diagram includes picture E and concepts 3(closed space), 4(more activities), 8(to solve problems), 14(arid region), 16(no God remembrance), 23(no loneliness), 24(safety), 32(crowded area), and 36(to help the others).

3) The third significant cluster in this diagram includes picture M and numbers 3(open space), 4(less activity), 8(not to solve problems), 14(wet region), 16(God remembrance), 23(loneliness), 24(no safety), 28(closed space), 32(not crowded area), 36(not to help the others). Here a traditional house is associated with concepts such as loneliness and not helping others but at the same time it is correlated to God remembrance, which one would expect to include a sense of assisting and being with others.

4) Another meaningful cluster in this diagram includes picture D which is associated with 9 concepts. These concepts are 1(old spaces), 6(traditional spaces), 10(no beauty), 15(more prosperity), 17(no tranquillity), 21(no easy life), 26(cultural consciousness), 38(no comfort life), and 39(historical buildings). According to this informational pattern historic and traditional spaces are seen as inappropriate spaces for living in although they are associated with cultural consciousness and prosperity.

5) The last important cluster of information about the built environment in this diagram is located in the fourth quarter of the diagram and includes photograph L and three concepts: 9(no healthy climate), 31(no perfection), and 34(no healthy climate). These associations show that the modern urban texture for this group is perceived as not matched with their health or their spirituality.

Figure (1.3) - The Diagram of Rotated Data for Women (Apartment)



Source: Barati N. (1996)

This group of women living in apartments has positive and negative ideas about both modern and traditional spaces and buildings.

The results for this group then relate quite closely to those for the male apartment dwellers, and serve to confirm the duality of perception of the people and their dissatisfaction with both types of space, which serves to stress the growing dilemma of the city.

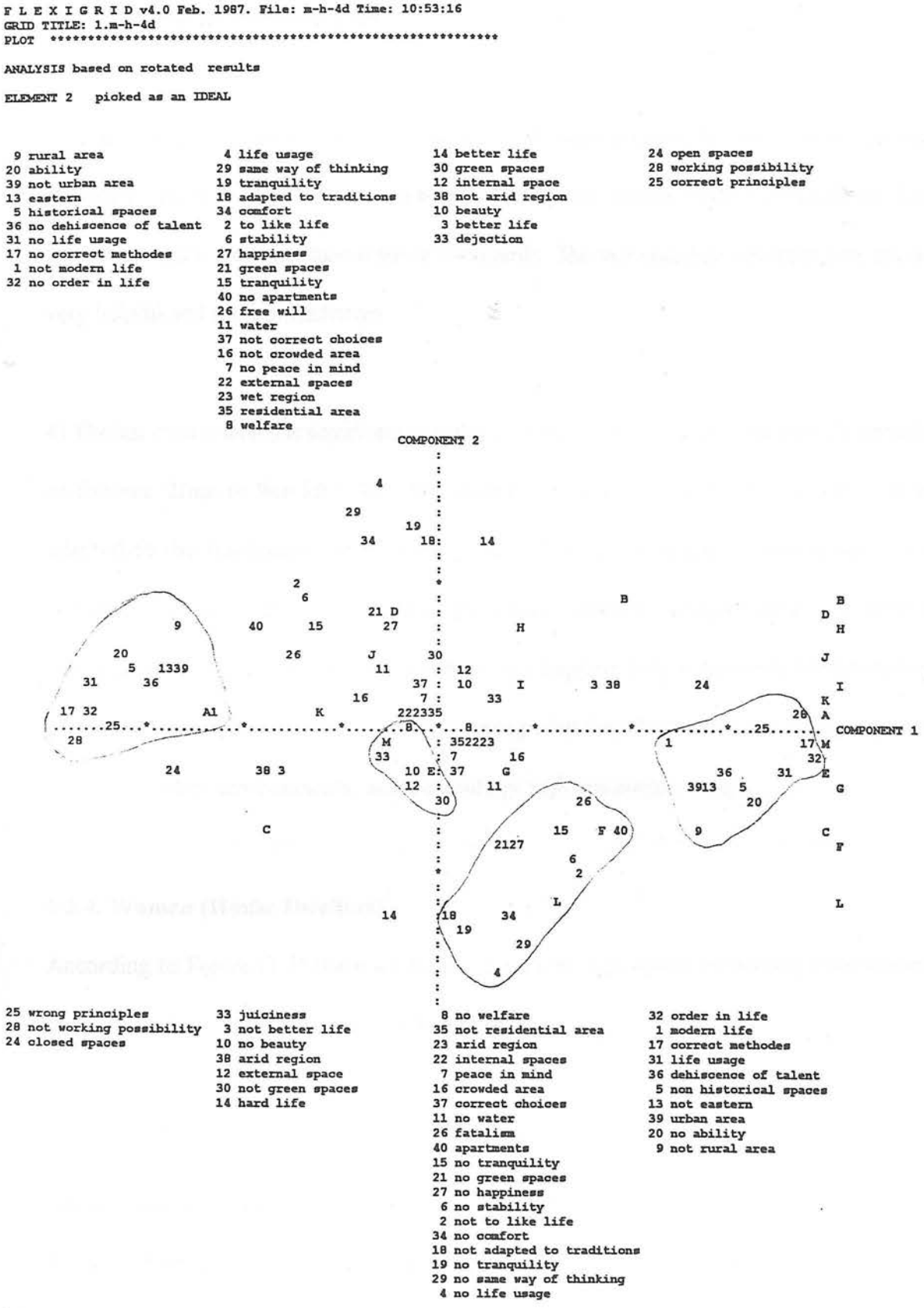
1.5.3. Men (House Dwellers)

Here there are four significant clusters:

1) The first meaningful clustering included here is of concepts 1(modern life), 5(non historical spaces), 9(not rural areas), 13(not Eastern), 17(correct methods), 20(no ability), 25(correct principles), 28(working possibility), 31(usage of life), 32(order in life), 36(manifestation of talent), 39(urban area). Like the other groups, these interviewees, who were living in houses in Tehran at the time of their interview, connect urban areas with modern and a 'not Eastern' way of life. In other words what is related to Eastern, (here Iranian) society, belongs to rural areas and is viewed negatively.

2) The second combination which is meaningful here includes picture A and concepts 1(not modern life), 5(historical spaces), 9(rural areas), 13(Eastern), 17(no correct methods), 20(ability), 25(wrong principles), 28(not working possibility), 31(no usage of life), 32(no order in life), 36(no manifestation of talent), and finally 39(not urban areas). Picture A is a villagescape, and we can see it is associated with several negative aspects and contrasted to urban space. It is associated with historical, Eastern, and ability [for self improvement] but,

Figure (1.4) - The Diagram of Rotated Data for Men (House)



Source: Barati N. (1996)

although it is the symbol of ability, it is not regarded as the correct choice or representative of correct principles and methods.

3) The next significant cluster in this diagram includes pictures M, and E with concepts 8(welfare), 10(no beauty), 12(external space), 30(no green space), 33(joyful/dejection). Both pictures M and E show traditional house courtyards. The associational concepts here are not very helpful and too contradictory.

4) The last cluster which is significant contains pictures L and F. It also included 12 concepts as follows: 2(not to like life), 4(no life usage), 6(no stability), 15(no tranquillity), 18(not adapted to the traditions), 19(no tranquillity), 21(no green spaces), 26(fatalism), 27(no happiness), 29(no same way of thinking), 34(no comfort), 40(apartments). In spite of admiring urban spaces in the first cluster in this diagram, here a relatively comprehensive perspective is given by the interviewees suggesting what they think about urban regions when evaluating urban environments, and particularly high residential towers.

1.5.4. Women (House Dwellers)

According to Figure (1.5) there are three information aggregates presenting contradictory ideas about the built environment in this group.

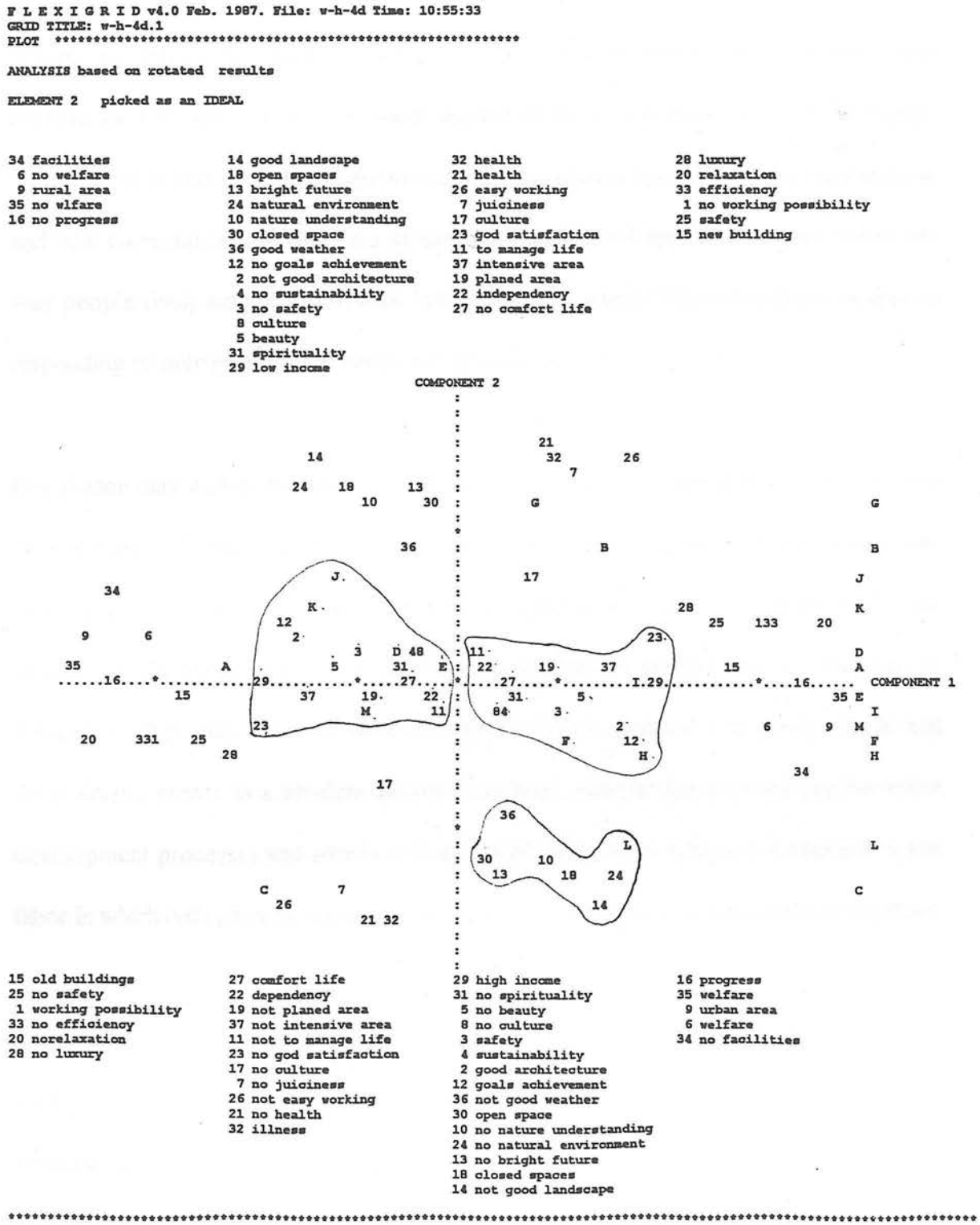
1) The first cluster contains pictures I, F, and H. It also contains several numbers representing different aspects in the environment: 2(good architecture), 3(safety), 4(sustainability), 5(no beauty), 8(no culture), 11(to manage life), 12(goals achievement), 19(planned areas), 22(independency), 23(God satisfaction), 27(no comfort life), 29(high income), 31(no spirituality), and 37(intensive areas). Pictures F, H, and I represent relatively modern

luxurious urban spaces. The concepts which are associated with these pictures are opposite to each other. Good architecture, for instance, is associated with no beauty, safety and sustainability are correlated with no culture and no spirituality.

2) This cluster of significant combinations of information in this diagram includes pictures D, E, J, K, and M which all show traditional environments and vernacular architecture. The concepts which are interconnected with them are: 2(not good architecture), 3(no safety), 4(no sustainability), 5(beauty), 8(culture), 11(not to manage life), 12(no goal achievement), 19(not planned areas), 22(dependency), 23(no God satisfaction), 27(comfort life), 29(low income), 31(spirituality), 37(not intensive areas).

3) The next group of clustered environmental information includes picture L and concepts 10(no nature understanding), 13(no bright future), 14(not a good landscape), 18(closed spaces), 24(no natural environment), 30(open space), and finally 36(no good weather). The contradiction here is that in spite of an acceptance of urban spaces in the first cluster in this diagram, here there are many negative associational concepts. This group therefore appears to have an inconsistent view of urban spaces in general.

Figure (1.5) - The Diagram of Rotated Data for Women (House)



Source: Barati N. (1996)

1.5.6. Summary of Analysis Based on Rotated Data Diagrams

The contradictory and polarised ideas which were revealed by the people here show that in the case of Tehran and its dwellers this city has a fragmented character related to a split between not only modern and traditional but East and West and other direct and deeply held associations. Of course it is not possible to say that all these responses are correct or logical, but the point is that through the expansion of fragmentation between people, their culture, and built environment this misunderstanding and conflict will increase. In other words, the way people think did not match with environmental patterns. The environment is seen as responding to only part of their needs and ignoring or rejecting the others.

One reason may well be that the concepts which have become associated with the physical environment in Tehran are derivable from political interests or global theories rather than cultural values. The association of physical elements in the built environment with 'God satisfaction' for instance is not, or cannot be, considered by decision makers, planners, or designers. They may not even have thought about this whereas it is a very crucial and deterministic matter in a Moslem society. The main point is that with the present urban development processes and criteria in Iran it is not possible to achieve a humanistic urban fabric in which both physical needs as well as cultural values can be considered all together.

The association between concepts of urban spaces, modern life, and apartments now can be seen as an accepted logical correlation for the whole group. This association mostly has been evaluated in a negative way, i.e. it is found closely correlated with 'negative'. There is also an over-riding tendency for everything that belongs to the past, and lies in contrast to what is considered new and modern and eventually a symbol of wealth, also to be considered negatively.

The first most obvious consideration for this would be related to the issue of money. It might be that negative associational concepts are related to the traditional environment, especially in contrast with the modern, symbolic of money, progress and facilities, because it is considered as a symbol of poverty and if one is poor, one cannot help others or solve your own problems. This inference is especially evident in the Women Apartment Dwellers group.

The finding of inappropriateness of the traditional homes is one of the most sobering for planners and designers. We should ask here why these kinds of spaces should be considered so negatively, that is associated with no beauty and no tranquillity. It is of particular concern in the light of other research (see Chapter Two) where we find that for architects, designers, and planners the case is the absolute opposite. When a traditional space which is seen as the symbol of a nation`s cultural consciousness and identity is associated, at the same time, with no comfort life and no tranquillity by the people, one can conclude that there is a problem in the relationship of people to their culture and their environment in that society. By this it is meant that there has been no place for a sense of belonging and cultural relevance to develop along with physical and technological development, out of an indigenous growth from the traditional patterns and fabric.

This is a very important issue and one of utmost relevance to this research. If this study is at all representative of Tehrani people, and people in the city appear to see what is Iranian in architecture and built forms as a part of themselves, rejection of these forms would be a rejection of the self, and this has serious implications for the nation and its future. It could be evidence of a serious problem and is indeed a sad situation to arise in people-built environment interrelationships, when what is admired as being of real cultural value is not derived from the local built environment but comes from foreign and strange elements in the

environment.

The way built environments in Iran have been developed in the recent century has been shown to have led to a very wide and deep differentiation between urban and rural areas. This kind of deep dualism has created a kind of symbolic meaning that has further led to vast and continual migration from villages to big cities which are the symbols of Western style and modern life. The decision makers who led the urban developments in this way created this kind of cultural/environmental dualism. Another possibility is that because people cannot understand, and consequently, cannot communicate with this environment they have called it Western.

1.6. Manual Data Analysis with the 'Chi Square' Test

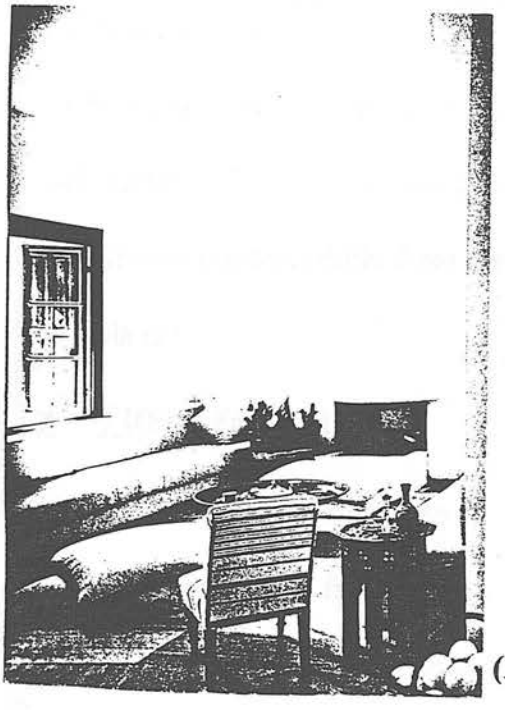
This section takes a closer view at people's evaluation of the fabric of their city; since the interviewees were either apartment or house dwellers, these two types of residence are examined here to find out in what aspects they are significant for people, and how and to what extent they differ from each other. The objective here is to find out whether there is any kind of confused or contradictory understanding of these two types of residence. As was mentioned at the beginning of this chapter each construct has two opposite poles which often present a positive and negative concept according to the subject's preference. In order to simplify the examination here the poles alone are considered and not the detail of the preference rating given to each one by the interviewee.

Examination of the constructs shows that of the thirteen pictures used in the interview, two are considered as apartments: pictures (I) and (L), while pictures (E) and (M) are mostly considered as traditional houses. This section of the analysis takes these four pictures studied against all constructs in order to find out which concepts they are associated with and how often (see Figure 1.6 for copies of the pictures).

According to the first manual information classification (see page 40 in this chapter) there are six groups of information through which the people in this study see and evaluate their environment. These are: 'quality of life', 'quality of environment', 'economic issues', 'social issues', 'cultural-identity', and 'spirituality'.

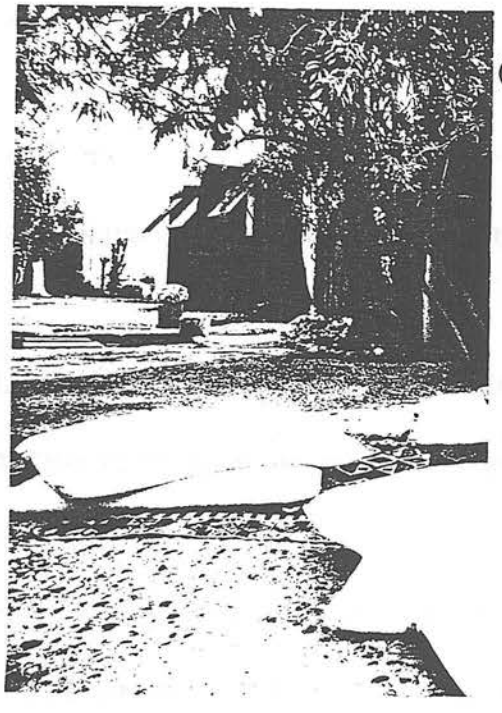
The associations made with apartments and houses were studied according to the given constructs. The number of positive and negative associational responses was counted and the total responses, in terms of each aspect, compared with each other for the two resident types.

Figure (1.6) Pictures (I), (L), (E), (M)

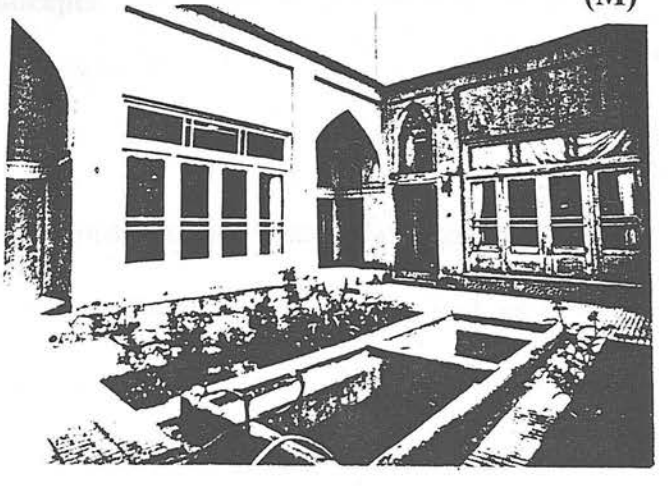


(I)

(L)



(E)



(M)

The concepts which are accepted as significant are the ones that are repeated at least twice.

Chi Square Test:

A Chi Square analysis was carried out on the observed frequencies of responses in each subtitle. This test examines the extent to which the observed frequencies (negative or positive) differ from the expected frequencies on a random basis. The formula is :

$$\chi^2 = \sum[(Fo - Fe)^2 / Fe]$$

Where Fe=expected frequency

and Fo=observed frequency

For each comparison the Chi Square level for significance at (p=.05) is 3.84. That is Chi Square values greater than 3.84 are significant.

1.6.1. Apartment and its Associational Concepts

1.6.1.1 Apartment and Quality of Life

As table (1.20) shows there is a wide range of responses to the aspects related to quality of life in connection with apartments as modern settlements. Here the intention is to find out to what extent people connect apartments with the concept of "quality of life". In spite of the variation in ideas correlated to this kind of residential unit, it seems that there is considerable agreement between people over some specific issues. These issues are very important because they represent a common understanding and interpretation by people who are living within the same culture.

According to the table the most significant point about 'quality of life' can be classified as follows:

* There are both subjective and objective factors associated with these spaces. With some subjective factors there is no real consistency within the group, i.e. positive concepts are repeated almost as frequently as negative, showing a lack of certainty. For instance the concept of 'tranquillity' is associated with 17 negative and 15 positive statements in relation to apartments. On the other hand, when there is discussion about the interrelation between apartments and matters such as facilities the expression of certainty between the people is notably higher. For example there is common agreement over the connection between apartments and facilities, welfare, easy life, and so on.

* Most modern settlements in Tehran include high towers. These types of residence are usually better serviced with facilities than most houses, particularly traditional houses. In the positive part of the table, the aspects of "comfortability", "facilities", and "welfare", are significant. This probably means that apartments have been able to satisfy people's needs in terms of tools and facilities. The figures also indicate that apartments, in one sense, are symbols of a "better life", "satisfaction", "to achieve aims", and "safety and security".

* Health and freshness are associated positively with apartments. The aspects of "health", "joyfulness", "high morale", "tranquillity" and so on emphasize this.

* In Iran, it seems that nowadays apartments are becoming symbols of power and wealth. The apartments are associated with "hope", "high social esteem", "luxury life", "to be distinguished", "to win social competition", and so forth. So apartments have developed their own symbolic meaning. This is borne out by research into the history of high towers in Iran (see Chapter Two

for further discussion of this).

* An evaluation of the more negative responses to apartments, shows that this type of home has not been able to satisfy everyone, or there are some cultural aspects for this group that apartments could not satisfy. Consequently we find many instances of the rejection of the value of apartments in terms of the same aspects that were also found positive, like "tranquillity", "comfortability", "satisfaction", and "joyfulness". It was found that the same person might find apartments 'tranquil' in one respect and 'not tranquil' in another, as well as different people in the same group finding contradictory statements appropriate .

* Some of the group strongly associated the apartments with important aspects of their lives, such as 'comfortability', 'welfare' and 'better life'; negative responses towards the same ideas underline the existence of a good deal of confusion and lack of certainty about the subject.

* According to the Chi square test for table (20), the comparison between positive responses (243) and negative responses (89) shows a value for χ^2=70 which means that the difference between these responses is significant. So, overall, the attitudes in this case are relatively positive.

Table (1.20) Apartment - Quality of Life

Positive responses	Frequency of responses	Negative responses	Frequency of responses
Comfortability	33	No tranquillity	17
Facilities	26	No comfortability	12
Better life	18	No joyfulness	10
Welfare	15	No satisfaction	9
Safety & security	15	Illness	8
Tranquillity	15	No hope	4
possibility of more activity	13	No thinking possibility	4
To achieve the aims	10	No desirable life	4
No poverty	8	No freedom	3
Good morale	6	Dependency	3
Possibility of solving the problems	6	Not to solve the problems	3
Hope	6	No survival	2
Satisfaction	6	Not to like the life	2
High education	6	Fatalism	2
Better opportunities	6	No activity	2
Health	6	Deficiency	2
Joyfulness	5	Not to achieve the aims	2
Thinking possibility	5		
survival	4		
Independency	4		
Open mind	3		
Less trouble	3		
Life improvement	3		
More choices	3		
Freshness	3		
Mental health	3		
Recreation	2		
Success	2		
Less danger	2		
Attention to the life	2		
Possibility of child training	2		
Longer life	2		
Total	**243**	**Total**	**89**

Source: Barati N. (1996)

1.6.1.2. Apartment and Quality of Environment

An evaluation of the apartments with regard to environmental quality produced 134 positive responses against 156 negative statements. The important concepts which are associated with apartments in this subject are as follows:

* In this category there is also a kind of uncertainty both within the group and from individual people. For example to be "modern" and in the "urban area" and not to be "traditional" is considered as both a positive and a negative aspect of apartments.

* In terms of stability, apartments are preferred. Statements like "solidity", "new buildings", "new construction", "bricks & concrete", for example, are significant. At the same time, they are associated with "developed technology", "human priority over nature", "industrial environment" and so on which means that apartments are symbols of technological power and progress of the human society.

* On the negative side of the diagram, however, apartments and their surrounding areas which are "modern", "urban" environments are regarded as distant from nature and natural elements. The apartments are also rejected because they are "artificial", "urban space", and associated with "high density";

* Chi square test shows for the total positive and negative responses χ^2=1.6. So the difference between them is not significant. In other words, generally, there is no certainty about the quality of the environment as related to apartments.

Table (1.21) Apartment - Quality of the Environment

Positive responses	Frequency of responses	Negative responses	Frequency of responses
Urban space	21	No natural elements	29
Modern	17	Urban space	14
Beauty	11	High density	13
Solidity	10	Modern	11
New buildings	9	Artificial	10
Not rural area	7	Closed space	9
Open space	7	No beauty	8
Residential	6	Residential	8
Developed teaching.	6	Apartments	8
Principles	6	New styles	8
External	4	No nice weather	7
Brightness	4	No silence	6
Desirable	4	Pollution	5
Bricks & concrete	3	New	3
More human intervention	2	Internal space	3
Apartments	2	Not airy	2
New construction	2	Not desirable	2
Nice climate	2	More human intervention	2
Possibility of assessment	2	External	2
Industrial environment	2	Arid region	2
Better decision making	2	Private space	2
Richness & luxury	2	Not traditional	2
No wet environment	2		
New style	2		
Total	**134**	**Total**	**156**

Source: Barati N . (1996)

1.6.1.3. Apartment and Economic Issues

* As table (1.22) shows, with regard to economics, the views are very clear. There are 38 positive responses against only 5 negative statements in this case. This means that the modern residences are highly associated with economic development and progress and so on.

Table (1.22) Apartment - Economic Issues

Positive Responses	Frequency of responses	Negative responses	Frequency of responses
Development	23	No development	3
To save the time	9	No saving energy	2
More working possibility	6		
Total	**38**	**Total**	**5**

Source: Barati N. (1996)

When compared with the other concepts there is a very strong message here about the symbolic meaning of the apartment in the Iranian society in terms of its association with economic power. It is possible to say that there is nowadays a global symbol relating blocks of high towers with wealth, money, economic power, etc. In Iran, ever since they were first introduced, modern facilitated apartment projects have been situated in the upper class areas of large cities, particularly in Tehran. They have gradually become, therefore, a symbol of wealth and welfare.

* Chi square test for this case shows χ^2=13 which means that the difference between positive and negative responses here is considerably significant.

1.6.1.4. Apartment and Social Issues

* Here the negative responses number more than the positive ones. Social issues are points with some relevance to the apartment / house comparison in Tehran.

* However, the Chi square test for meaningfulness between positive and negative responses is χ^2=.08 which shows no meaningful difference between them in this case.

Table(1.23) Apartment - Social Issues

Positive responses	Frequency of responses	Negative responses	Frequency of responses
Social co-operation	3	No social relation	5
Social relations	3	No serenity	3
Less social problem	2	No social cooperation	3
Less conflict	2	No sound society	2
		Not to change information	2
Total	10	Total	15

Source: Barati N. (1996)

1.6.1.5. Apartment and Cultural Identity

According to the total numbers of statements about identity and culture in this research there is a very negative view in terms of any interrelation between apartments and cultural identity. The result of various properties in this correlation shows that apartments are generally connected to modern Western concepts.

Table(1.24) Apartment - Cultural Identity

Positive responses	Frequency of responses	Negative responses	Frequency of responses
		No historical background	13
		No identity	6
		No cultural background	6
		No attention to the ancestors	2
		No genuine	
Total	**0**	**Total**	**27**

Source: Barati N. (1996)

* Since χ^2 in Chi square test for this table is equal with 27 it means that the difference between positive and negative responses is considerably significant.

1.6.1.6. Apartment and Spirituality

* Regarding the concepts related to spirituality there is a significant difference between positive

and negative responses for apartments. The number of positive statements is only two whereas there are thirty one negative. The first point here is that the interviewees believe that there is a connection between the built environment and spirituality as part of their cultural context. The second point is that the group almost always generally believes that there is no connection between apartments and spirituality.

Table (1.25) Apartment - Spirituality

Positive responses	Frequency of responses	Negative responses	Frequency of responses
Perfection	2	Not religious	15
		No God satisfaction	5
		Not to achieve to God	3
		No comfort conscience	2
		No faith	2
		No encouraging to the religion	2
		No spirituality	2
Total	**2**	**Total**	**31**

Source: Barati N. (1996)

* For this case according to Chi square test χ^2=30 which means there is a significant difference between positive and negative responses.

1.6.2. House and its Associational Concepts

1.6.2.1. House and Quality of Life

* According to table (1.26) there are in total 71 positive and 17 negative associational statements regarding quality of life related to the traditional settlements (pictures E and M). Although the total number of statements is lower in comparison to modern houses, what is important is the ratio between positive and negative statements. From this point of view people have a relatively

positive attitude about traditional residences in their association with quality of life criteria such as 'tranquillity', 'joy', and 'thinking possibility'.

* In case of "comfortability", and "facilities" as well as "relaxation", responses indicate a rather low association with traditional houses. As mentioned before these concepts are mostly associated with modern settlements.

* In total, compared to apartments, the group thinks the relationship between life quality and traditional houses in slightly positive terms. It is a significant point because in spite of a shortage of facilities in these houses, when compared with the apartments, people do consider life quality in older types as more acceptable.

Table(1.26) House - Quality of Life

Positive responses	Frequency of responses	Negative responses	Frequency of responses
Tranquillity	18	No comfortability	4
Joyfulness	8	No facility	4
Comfortability	6	No satisfaction	3
Health	6	No health	2
Thinking possibility	5	Not better life	2
Better life	5	No hope	2
Security	4		
No anxiety	3		
Solving the problems	2		
No luxury life	2		
Mental health	2		
Independency	2		
Open mind	2		
Satisfaction	2		
Welfare	2		
Better new generation	2		
Total	**71**	**Total**	**17**

Source: Barati N. (1996)

The Chi square test for the "quality of life" in relation to traditional houses shows that χ^2=16. Consequently, that people think about this in a positive way.

1.6.2.2. House and Quality of the Environment

* The total number of positive and negative associations here shows a positive inclination towards traditional houses in the group. The most distinctive cases in this category are "closeness to nature" and association with "nice climate", "airy", "no natural destruction" and " not mechanical environment". In these cases traditional houses are, therefore, set in contrast to the apartments.

Table(1.27) House - Quality of the Environment

Positive responses	Frequency of responses	Negative responses	Frequency of responses
Nice weather	11	Old buildings	8
Close to the nature	10	Not modern	7
Open space	8	Not green	4
External space	5	Not urban	3
Traditional houses	5	Old style	3
No apartments	4	Private	3
Silence	4	Residential	3
Low density	4	Closed spaces	3
Private	3	External	2
Residential	3	Rural spaces	2
Brightness	3	No new technology	2
To recognize the problems	2	Brightness	2
Old buildings	2	No balcony	2
No wet region	2	Urban spaces	2
Not mechanical environment	2		
Court yard	2		
Airy	2		
Villa houses	2		
Better decision-making	2		
Familiar environment	2		
Total	**78**	**Total**	**46**

Source: Barati N. (1996)

* There are other significant issues in the responses which indicate reasons for people to prefer a specific residential type. For example, although traditional houses are attractive and "familiar" in terms of their characteristics, in a negative sense they are considered as "old", "not modern", "not in the urban area", and so on.

* In this Chi square test χ^2=8. Therefore there is a meaningful difference between positive and negative responses.

1.6.2.3. House and Economic Issues

* Because there are only two positive responses here, it is impossible to conclude any acceptable analytical result in relation to this point. But what is clear here due to the lack of response, is that the interviewees do not see any relationship between traditional houses and the economy. As discussed before, this is opposite to the case of apartments where there was a strong integration between economics and type of residence. In other words, one of the main factors differentiating these two types of house is the correlation between them and economics, although to a slightly lesser degree the same is true for new technology, i.e. modern facilities such as telephone and so on.

Table(1.28) House and Economics

Positive responses	Frequency of responses	Negative responses	Frequency of responses
Development	2		
Total	**2**	**Total**	**0**

Source: Barati N. (1996)

* Since the number of positive and negative responses are too low Chi square test cannot be applied for this case.

1.6.2.4. House and Social Issues

* In terms of social issues, traditional houses are considered to be supporters of social interrelationships. Even where there are negative responses in this case it seems that it is because this kind of house has been linked with a sense of poverty and bad economic conditions. Naturally these conditions will not allow people to take care of each other and have mutual social support for each other (for more discussion see Chapter Two; Barati et. al. 1997). Generally speaking, the interviewees in this survey believed that, when compared to apartment residences, traditional houses, definitely provide a more proper space for social interrelations.

Table(1.29) House and Social Issues

Positive responses	Frequency of responses	Negative responses	Frequency of responses
Sound society	5	No social cooperation	3
Social relations	5	No social relation	2
Serenity	4	Not to help the others	2
To be with the family	2		
Social responsibility	2		
Total	**18**	**Total**	**7**

Source: Barati N. (1996)

* Chi square test for this table is χ^2=6 so the difference between positive and negative responses is significant.

1.6.2.5. House and Cultural Identity

* According to table (1.30) traditional houses are significantly closer to the concept of cultural identity from the interviewees' point of view than apartments. Compared to the results for modern residences (in which all the responses were negative) it is possible to say that traditional houses are considered the symbol of cultural and national identity.

Table(1.30) House and Cultural Identity

Positive responses	Frequency of responses	Negative responds	Frequency of responses
Eastern style	6	No historical background	3
Identity	4	No cultural background	2
Adapted to the culture	3	No identity	2
Historical background	2		
Total	**15**	**Total**	**7**

Source: Barati N. (1996)

* χ^2 in Chi square test for this case is equal with 4.2 so there is a significant difference here between positive and negative responses.

1.6.2.6. House and Spirituality

Spirituality in Eastern societies is a fundamental issue. In Islamic societies spirituality is the main background for social life and environmental unity (see Chapters Four and Five for further discussion). The negative responses show only that people make a distinction between holy spaces such as mosques and shrines and their homes. In contrast to apartments, traditional houses are seen as symbols of spirituality, the positive responses indicate that people deeply believe that houses, and not apartments, are adapted to their faith. They also feel that in traditional houses people are closer to God so they connect this type of house with 'God satisfaction'. In societies like Iran this is actually a basic criterion in terms of environmental quality which has been ignored in recent developments. This is one of the concepts that can be understood best within an Iranian cultural context. It is also one of the environmental characteristics which cannot easily be addressed or considered within globalised planning and design solutions.

Table (1.31) House and Spirituality

Positive responses	Frequency of responses	Negative responses	Frequency of responses
God satisfaction	5	Not religious space	8
adapted to the beliefs	2		
Faith	2		
Total	**9**	**Total**	**8**

Source: Barati N. (1996)

* For this table χ^2 in Chi square test is $\chi^2 = 0.25$ so there is no meaningful difference between positive and negative responses for this case, in terms of numbers, although there is qualitative difference as outlined above.

1.6.3. Summary to This Section

Over the last century not only has there been no tendency among politicians, decision makers, planners, and designers to re-identify what they were importing from abroad in order to change the environment more sympathetically but in fact they were usually keen to emphasise the representation of these ideas in the environment in their original (Western) form to show the extent to which the country had developed. Now, after decades of experiencing this, the research here shows that apartments are not responding completely to the people's needs. Indeed people see them as something posed against their identity and culture, although they meet many of their material needs. The cultural and spiritual aspects relating to the home have not been forgotten by the people, although they have lived in modern buildings which do not relate to these aspects for several years. These values are therefore a deeply rooted part of the context and their culture. This split in values and its consequent confusion is the main theme of this part of the research. Even the word "Apartment", has not been translated and is still used while the majority of people do not know its meaning and its associated connotations.

1.7. Final Analysis

In this section the total figures will be examined and the results of responses to both modern and traditional residences will be compared to each other in order to find out where there are significant and deterministic concepts in the evaluation of the built environment in residential spaces. In addition to the tables and diagrams and their analysis there will be a Chi square analysis to show the significance of all these figures in a comparison between the two residence dwelling types and their associational concepts.

Tables (1.32 & 1.33) include the frequency of responses related to the evaluation of apartments as against traditional houses based on six categories: quality of life, quality of environment, economic issues, social issues, cultural identity, and spirituality. These categories were found in the first manual classification of all constructs as the first stage of information analysis. The tables also show the ratio between positive and negative responses to the total number of responses to each concept. The last column in the tables show the ratio between the sum of the answers, positive and negative, to the sum of the frequency of all statements.

According to the interviewees in this research, for the concepts of social issues, identity, and spirituality the traditional house is the more favoured residence. In terms of physical quality and general economic issues, in contrast, apartments are more accepted. In general, the tables show more responses about apartments and modern spaces (892/372). One possibility for this phenomenon is that people in the present city of Teheran are usually overwhelmed with what is called a modern environment and its advantages and disadvantages so they naturally think more about this issue. The other possibility is that traditional houses can hardly be found in

Teheran and what is left is in bad condition in terms of accessibility, public services, and facilities.

Table (1.32) Apartment - Final Classified Responses

Responses' nature > Subjects v	Positive	Negative	Total number	Total ratio
Quality of the life	243 (73.19%)	89 (26.81%)	332	44.27
Quality of the environment	134 (46.21%)	156 (53.79%)	290	38.67
Economy	38 (88.37%)	5 (11.63%)	43	5.73
Social issues	10 (40.00%)	15 (60.00%)	25	3.33
Culture & Identity	0	27 (100.00%)	27	3.6
Spirituality	2 (6.06%)	31 (93.94%)	33	4.4
Total	**427 (56.93%)**	**323 (43.07%)**	**730 (100.00%)**	**100**

Source: Barati N. (1996)

There are some recent types of traditional house which are copies of earlier traditional houses, only on a smaller scale where some of the characteristics and functions of the originals have been omitted. People living in this type of house have perceived considerably fewer problems compared to the apartment dwellers.

The last probability for this issue is that from the beginning of this century Iranian society has been faced with a strong wave of modernising developments in all aspects of life (see Chapter Two for more discussion). Therefore, the contrast between modern and traditional and their possible relations and boundaries have attracted a deal of attention. This could well be one

of the reasons that people concentrate mostly on expressing their ideas about the modern environment and spaces.

Table (1.33). Traditional Residences - Final Classified Responses

Responses' nature > Subjects v	Positive	Negative	Total number	Total ratio %
Quality of the life	71 (80.68%)	17 (19.32%)	88	31.65
Quality of the envoi.	78 (62.90%)	46 (37.10%)	124	44.60
Economy	2 (100.00%)	0	2	0.72
Social issues	18 (72.00%)	7 (28.00%)	25	9.00
Culture & Identity	15 (68.18%)	7 (31.82%)	22	7.91
Spirituality	9 (52.94%)	8 (47.06%)	17	6.12
Total	193 (69.42%)	85 (30.58%)	278 (100.00%)	100.00

Source: Barati N. (1996)

1.7.1. Modern-Traditional Residence Comparison

In order to assess the nature of the constructs elicited across the different categories, i.e. quality of life, quality of environment, etc. between modern and traditional sites, for this final analysis a series of Chi square tests were carried out. As already mentioned each construct was rated positive or negative along a 'modern or traditional' axis. The result of the Chi square test for this rating is as follows:

1) Quality of life: The significance difference between positive and negative ratings across

modern and traditional dwellings is:

$$(\chi^2 = 2.61 \quad df=1 \quad p> 0.05)$$

It means, therefore, that difference between perception of the apartments and traditional houses, in terms of the concept of the 'quality of life' is not significant.

2) Quality of Environment: The significance here between positive responses ratings in traditional dwellings is:

$$(\chi^2 = 9.70 \quad df=1 \quad P< 0.01)$$

In other words, the people see traditional houses as significantly more appropriate than apartments in terms of 'quality of environment'.

3) Economic issues: In this case, because of the shortage in the number of statements in the case of traditional houses the Chi square test is not implementable.

4) Social issues: For the concept of social issues the number of positive responses in favour of traditional houses is significant. This significance according to the test is:

$$(\chi^2 =5.2 \quad df=1 \quad P< 0.05)$$

Therefore, traditional houses are more associated with social interactions and interrelations.

5) Cultural identity: The significance difference between positive and negative ratings across modern and traditional dwellings is:

$$(\chi^2 =26.5 \quad df=1 \quad P< 0.01)$$

In other words apartments, compared to traditional houses, are considered as having nothing to do with the concepts of 'culture', or, 'identity'.

6) Spirituality: Again for the concept of spirituality the positive responses for traditional houses were meaningfully significant:

$$(\chi^2 = 14.3 \text{ df}=1 \quad P< 0.01)$$

It is only traditional houses which can satisfy people in terms of the concept of 'spirituality'.

The main findings of the tables (32 and 33) can be classified as follows:

1. In the concept of 'quality of life,' the ratio between positive and negative responses shows that traditional houses are more acceptable.

2. In concept of 'quality of environment' again there is higher acceptance of traditional houses compared to apartments.

3. Economically we can see a weak association between traditional houses and economics. However, there is a strong association between the idea of apartments and developed economy.

4. According to the tables in relation to social aspects there is no significant difference between groups in terms of their residence. Although houses dwellers have shown more tension in this case.

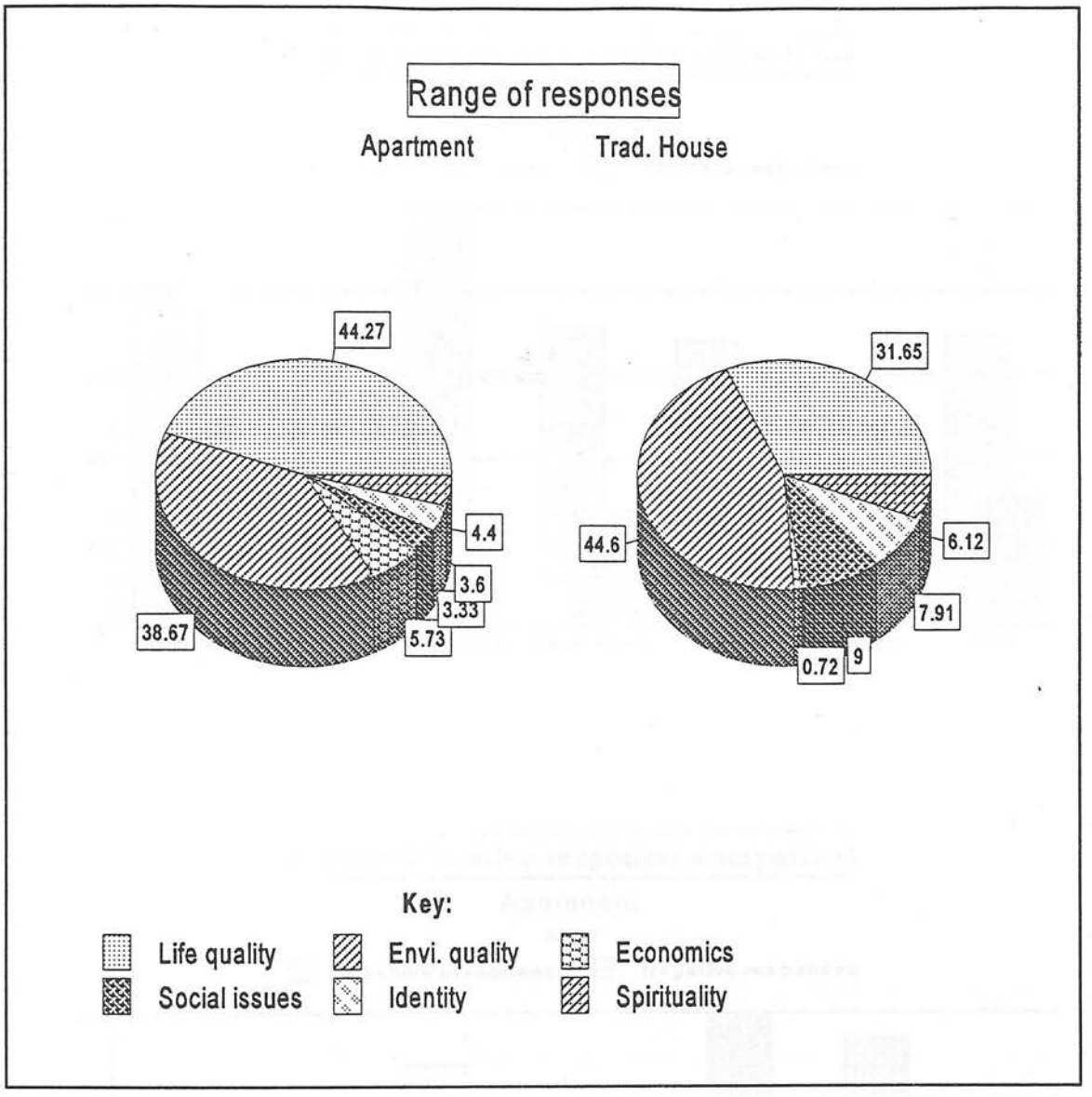
5. For the aspect 'cultural identity' the difference between the two types of houses is obviously high. As the tables indicate, more than 70% of the responses regarding traditional houses in association with cultural identity are positive, whereas apartments received only 11.11% of total responses in this case.

6. The last concept in the tables is spirituality. Here again we see a considerable difference between apartments and traditional houses. Only about 10% of total responses to the connection between apartments and spirituality are positive. This means that apartments, in one way or another, do not provide an acceptable connection for people with regards to their spirituality.

1.7.2. Range of Responses

The following diagrams show all responses made in relation to apartments and traditional houses. The diagrams display comparisons between the associations made with relation to both types of residence.

Figure (1.7) - Range of Responses Associated with the Concept of Apartment and House

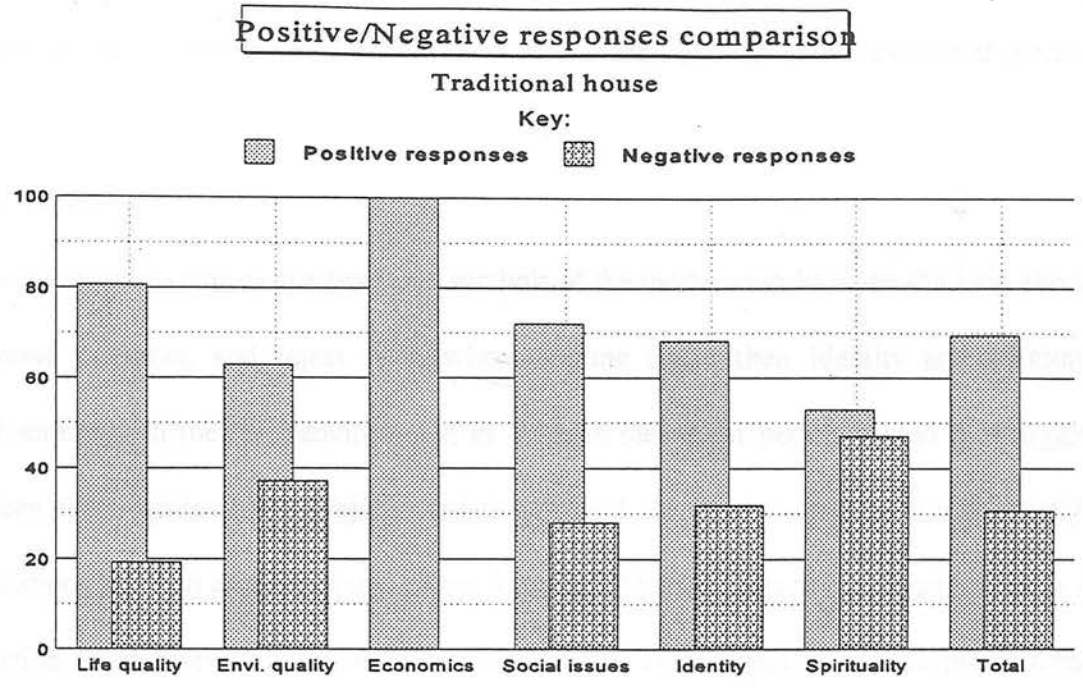


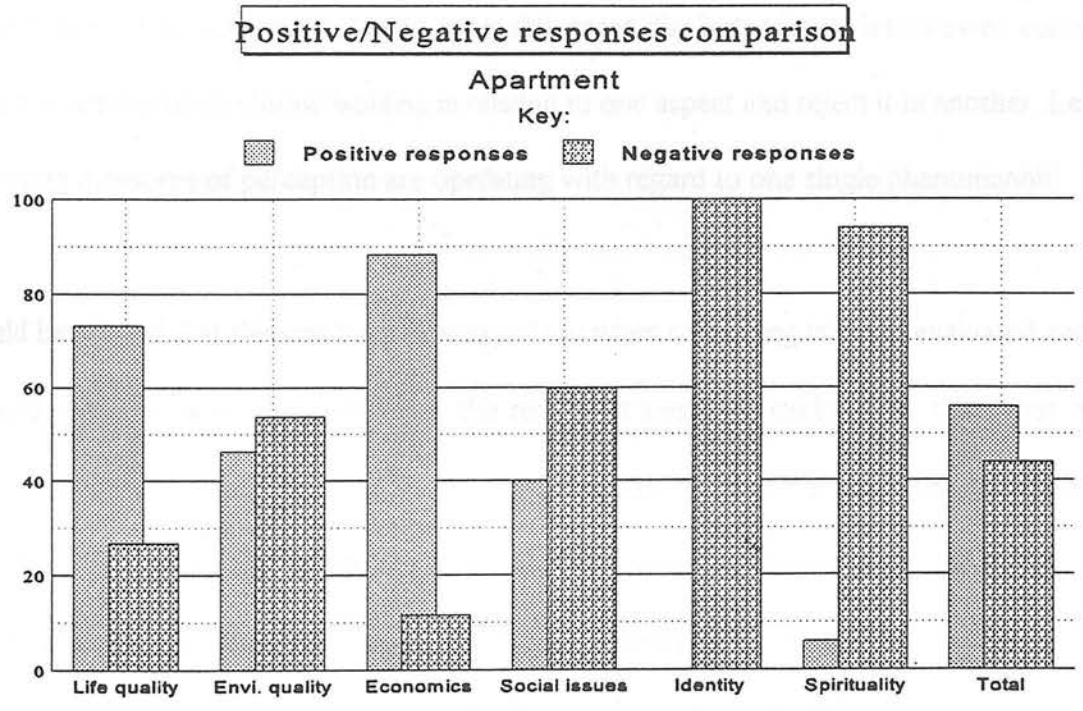
Source: Barati N(1996)

The following conclusions can be drawn from the two diagrams presented here:

1. Both 'quality of life' and 'quality of the environment' are significant issues raised by the respondents.

Figure (1.8) Comparison of Positive and Negative Responses





However, neither group is currently satisfied by the present condition of either apartments or traditional houses. In addition there is considerable confusion as well as contrasting attitudes between people in terms of their evaluation of different aspects of residential spaces.

1.7.3. Notes

1. The interviewees admire apartments as symbols of the modern world when thinking about economic progress, and reject them when thinking about their identity and religion. Involvement with the built environment in Teheran means for people a kind of struggle between the outside world (objects and things) and the inside world (cultural beliefs). Associations between aspects of spaces are fragmented by this 'objective' versus 'subjective' distinction. So that what is acceptable objectively, that is as an object, is not acceptable from the point of view of the subjective, within the personal value system, and vice versa. Not only are there contrasts and disagreements between people in the group but also there is a similar problem in case of individuals. In some notable cases, for instance, an interviewee could respond positively to an historic building in relation to one aspect and reject it in another. I.e. conflicting measures of perception are operating with regard to one single phenomenon.

It could be argued that this can happen everywhere when something is being evaluated and to some extent this is true. However, the results of this case study show that what is appreciated is mostly associated with something that is considered as not belonging to people themselves. This raises the question as to whether the integration between people and their environment which is supposed to emerge from shared values between the quality of the built environment and the people`s beliefs actually has any opportunity to exist any more.

2. In relation to other matters such as economics, social issues, identity, and spirituality, the

fluctuations apparent in both diagrams support this idea. Economics, for instance, is readily associated with the apartments, as are concepts of development and progress. As the answering sheets show, factors such as urban spaces, modernism, wealth, welfare, facilities, and apartments were associated strongly, in most circumstances, to each other. But when other factors like tranquillity, cultural background, identity, and God satisfaction are involved, we see evidence of quite different attitudes. So we can conclude that individuals as well as the whole group are not satisfied with either of the residential types. There is also an obvious lack of consistency concerning evaluation and preferences in the environment for this group of people in Tehran.

According to this analysis, except for the concepts of 'economic issues' and 'quality of life', traditional houses are preferred. This is most evident in terms of 'culture', 'identity', 'spirituality', and 'quality of environment'. As this survey shows, people consider Tehran to be a modern Western type city and a considerable number of people already live in high towers. That they see both the city and their residences as aspects of their lives that are opposed to their identity, spirituality, and the environmental quality they believe in, shows the extent to which they are dissociated and estranged from their environment.

1.8. Summary

According to George Kelly and others, whatever the external world might in reality be, people link themselves to it by interpreting it or, in other words, by adding meaning to it. A mutual interrelationship is established through which the human mind can understand the external world and contribute to it. By imposing concepts and meanings into the environment which relate to the concepts and meanings they have in mind, people are able to form a certain unity, a state of continued interaction between the human mind and the external world. This is a matter of perception, understanding and action; what people see in the external world is related to what they have in their mind as stored mental assumptions, and what people put into the world comes from that store of assumptions. The stored structured information is strongly influenced and reinforced by the sharing of values with other people. This information/knowledge and the way it is structured, is 'culture' .

In order to survive people need to know the meaning of the external world; to live in a given society they have to have shared values, with other people and with the environment. These environmental meanings are not just what an individual invents or suggests. These meanings, which are shared with the society, are stored in the local cultural knowledge, they are representations of that culture embodied in the built environment.

What people say about the environment depends on their cultural knowledge, on what they have in their mind, what the environment offers and on how closely these factors are adapted to each other.

The results of the interview which took place in Tehran can be classified as follows:

In this chapter the idea was developed that people perceive the external world through bi-polar constructs. According to George Kelly`s theory this is the way the human mind understands the external world. By imposing concepts or meanings into the environment, the human mind and the external world achieve a point at which a person can comprehend the surroundings. On the other hand, what people see in the external world initially is related to what they have in their mind as stored mental assumptions. This stored information has a structure containing a network of bipolar constructs. This structure acts as a filter through which one interprets the world and acts accordingly.

The main objective of this chapter was to use a P.C.P. related technique to examine how this research sample group, people who live in the city of Tehran, interpret their environment. The main target here was to find out the shared constructs and concepts they use for this interpretation. It was also the concern of this chapter to find out the shared concepts which are important for people when evaluating the environment. Not only the concepts but the way people associate them to each other was significant, i.e. which concept is associated with which others.

What generally can be considered as the result of this interview can be classified as follows:

1. A significant point is that people do interpret the external world. The constructs and concepts they raised indicate the ways they understand the environment. The relationship between those constructs and concepts also indicate the way people associate different aspects in the environment with each other.

2. Generally, the research indicates that the interviewees in this research have inconsistent and disjointed views about their environment and there is a mismatch between what people

believe about the built environment with what the built environment offers to them. The people are therefore confused by their environment, aware that it does not meet their needs but not wanting to reject it.

3. According to people's view, the urban fabric in Iran is either associated with the past (traditional fabrics/buildings), or with the Western societies (modern fabrics/buildings). Significantly, there was no evidence that there is an urban fabric associated with a modern Iranian lifestyle or image.

4. The interviewees correlate built environmental aspects/concepts not only with objective issues such as facilities, physicality and so on but also to the subjective issues such as identity and faith.

5. The concepts which are associated together are significant. One of the most important outcomes of this research shows that there are two major associational groups. In one group concepts such as traditional, Eastern, no progress, natural, no welfare, rural space, and God satisfaction are associated together. In another group concepts such as modern, Western, progress, artificial, welfare, urban space, and no God satisfaction are associated.

6. The survey shows that in spite of differences in terms of gender, age, educational level, and type of residence, the interviewees, who have their own individualistic ideas, have still shown generally basic shared views about the built environment.

7. Apartments, the same as urban areas, modern architecture and Western style buildings, are considered positively as symbols of economic progress, development, and welfare. On the

other hand, compared with traditional houses, they are seen negatively, not as symbols of cultural identity, social relations, and spirituality. Therefore, what is accepted because of its physical efficiency is rejected because it has no relation with subjective issues: beliefs, values, and so on.

8. Some of the discriminations which are developed by the interviewees are also significant such as making a contrast between urban environment/rural environment, natural/artificial, western/eastern, and God satisfaction/no God satisfaction. Not only the constructs but also the concepts that are associated to them are important in terms of interpretation of the world view of these groups and their interpretation of the world, e.g. environment.

9. A comparison between the concept of apartment, which was already associated with modern and Western, and the concept of traditional house shows that except in terms of economics traditional houses are preferred compared to apartments in relation to all other aspects such as quality of life, quality of environment, social issues, and so on. The apartment, although it is seen as the symbol of progress and development, has nothing to do with the concept of identity at all.

10. All the responses show a fragmentation between objective and subjective issues in the consideration of Tehran. Consequently what objectively is accepted can be subjectively rejected and vice versa. This is the main reason for the confusion because the built environment in Tehran is itself already dualistic and confused.

This thesis intends to explore the question of how this situation has emerged and what can be done about it? In order to examine this situation and to find acceptable answers

for these questions the history of Tehran`s development will be examined in Chapter Two. The survey has shown that despite the increase in comfortability, serviced buildings, facilities and less hardship, people living in Tehran have a negative and confused idea about their city. These ideas are partly related to the present city itself and also to the way it has developed, because it seems that the reasons for this confusion and dissatisfaction among people and the contradiction between people`s value systems and the city, are embedded in the nature of urban development in Iran.

Chapter Two

Tehran's History and Urban Development

2.1. Introduction

In Chapter One the survey indicates that there is some inconsistency among people concerning the way they understand the environment in Tehran. This may have been due to the environment giving out conflicting messages and associations which inevitably affect people's minds. This chapter intends to examine the way Tehran has been developed and changed in order to see how these changes have been carried out, and why. The idea is to establish the relationship between the physical structure of Tehran and the people`s confusion about the environment along with the concepts they addressed. Discrimination in the built environment between descriptors such as modern/tradition was one of the key issues which characterises people`s perception as well as attitudes. The history of changes in Tehran can possibly help us to understand the roots and origins of this dualism. Further more it may lead us to see why people have associated modern and tradition particularly in a distinctive way.

Tehran, compared to the many other large towns and cities in Iran, is rather young. Actually 1990 (1368 A.D) was the two - hundredth anniversary of Tehran as the Capital City of the country. Before that it was an ordinary village near one of the most important ancient towns in Iran, Rey. We can therefore consider the development of Tehran as a manifestation of the history of thinking in relation to urbanisation in Iran in this period. Transition from the past to the present and a movement from tradition to the modern can be clearly seen and examined

in the fabric of this city as good an example of this as any that could be found. In this chapter the target is to study this history in order to isolate the mechanisms of change and to establish how these changes affected the existing environment and cultural context as a whole.

An examination of Tehran`s history is the examination of the political changes in this country from eighteenth to twentieth centuries. One of the most considerable points in this study is a gradual fragmentation process in which people and the city have become ever more separated. To fulfill this examination a kind of classification will take place with the acknowledgement that history cannot be divided into strictly separate and independent parts, i.e. each period of time and its related changes is united with the past and future. In other words, the present is nothing but transformation of the past, and the future will be the transformation of the present.

To study Tehran and the way it has developed it may be useful to divide its history into three basic periods. The idea of classification in the history of Tehran has been used by other researchers before. Although they are not totally appropriate to the classification in this research, there are close similarities between them. For example Habibi (Professor of Architecture and Urban Design, Head of the Department of Urban Planning and Design, University of Tehran), believes in different classification of periods of Tehran's development, from traditional to modern, which is based on political changes (c.f. Habibi 1990; Habibi 1994a; Habibi 1994b). Mohammedzadeh Mehr (1991) took the most traditional square in Tehran, 'Toop-Khane', and identified periods of physical development according to the major changes in that square, thus defining the dates as: 1847-1886, 1886-1942, 1942-present time (Mohammedzadeh Mehr F. 1991). Sultanzadeh H. (1995) exploring Tehran`s traditional buildings, has designated the second period of the Qajar reign and the first part of the Pahlavi

regime time as the 'transition period' in Tehran`s architecture. In Zaadboom consultancy`s analytical report for Tehran`s Industrial Allocation Scheme Research (Zaadboom 1994) the spatial transition of Tehran is classified into three periods:

1. The period of foundation and early growth - The beginning of the Qajar reign to the establishment of the Pahlavi reign (1779-1932). During this period of tremendous change throughout the world, Tehran is a typical traditional Iranian town, which begins life as a new town .

2. The period of renovation and modernity (1932-1954); the beginning of the second half of Pahlavi I reign in which the social and physical structure of Tehran changed due to major changes in the country`s economy as it moved from feudalism to capitalism. In this period the appearance of the traditional town was combined with European elements, the result of which was a dualistic physical fabric.

3. The third period is associated with the increase of oil price and land reform and linkage to global capitalism in a dependent manner (Zaadboom 1994).

In this research Tehran`s physical developments will be divided into three periods:

(1) The period of **indigenous developments**, from the very early beginning to the 1850s;

(2) The period of **transition** (the beginning of the local conventional styles move towards global style), (1850s to 1940s);

(3) The period of **modernisation** (1940s-present).

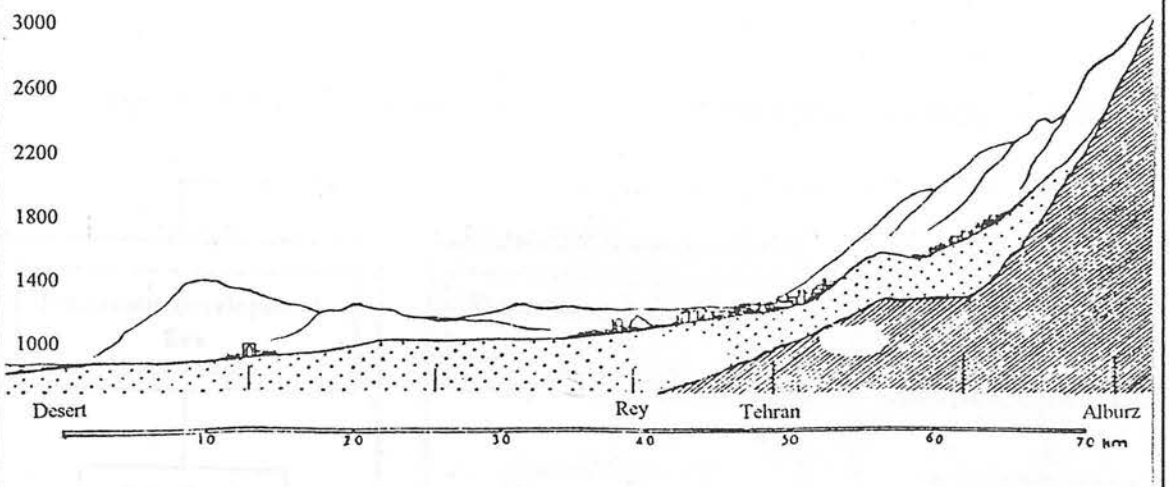
Before we embark on this historical analysis, it is useful to briefly introduce a review of Tehran's geographical and other background information.

2.2. Geographical Characteristics of Tehran

In summary, Tehran is skirted by the Alburz Mountain Chain to the north and desert to the south. Its geographical proportions are length 51, 4` to 51, 33`, and width 35, 35` to 35, 50`. Climatically the city is generally located in the arid region. Temperatures in Tehran vary from a maximum (44) degree centigrade to a minimum (-14) centigrade. The average temperature in this city is about (16.8) degree centigrade. Tehran`s average height from the sea level is about 1350m. Its rainfall average is about 230 millimetres per year (The Project of Revision of the Tehran`s Master Plan 1990). Tehran, at the present time, is made up of 20 regions. Between 1980 - 1986, the city had about 570 square kilometres accommodating 20 areas (Regions) and 350 quarters (Madanipour 1989).

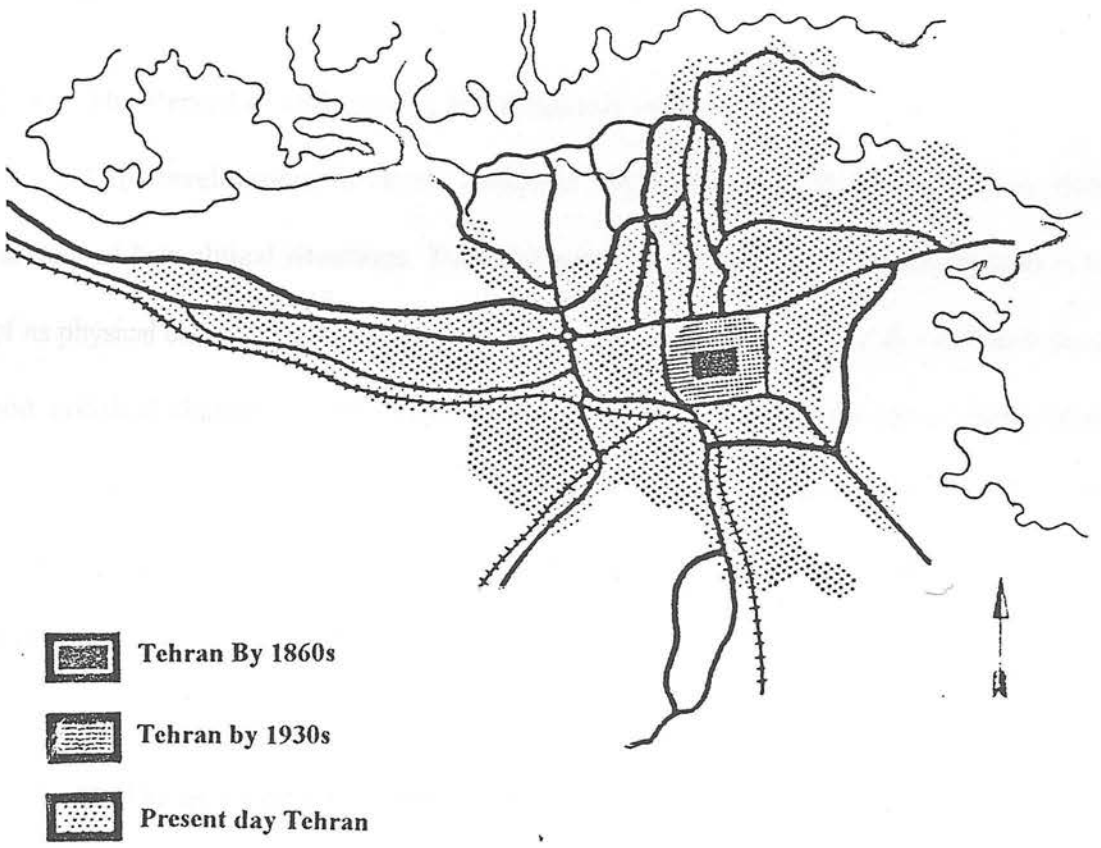
Many travellers who visited Tehran when it was a village, described it as having a good location with accessibility to water and vast agricultural lands and lots of orchards. Many travellers and tourists who visited Tehran between the 1400s to 1800s recalled particularly the greenery and gardens which existed inside and outside Tehran (Madanipour 1989; Zaadboom Counsultant Research 1991; Safamanesh 1993).

Figure (2.1) - North/South cross section of the region of Tehran, showing height above sea level in meters



Source: Saeidnia A. (1990)

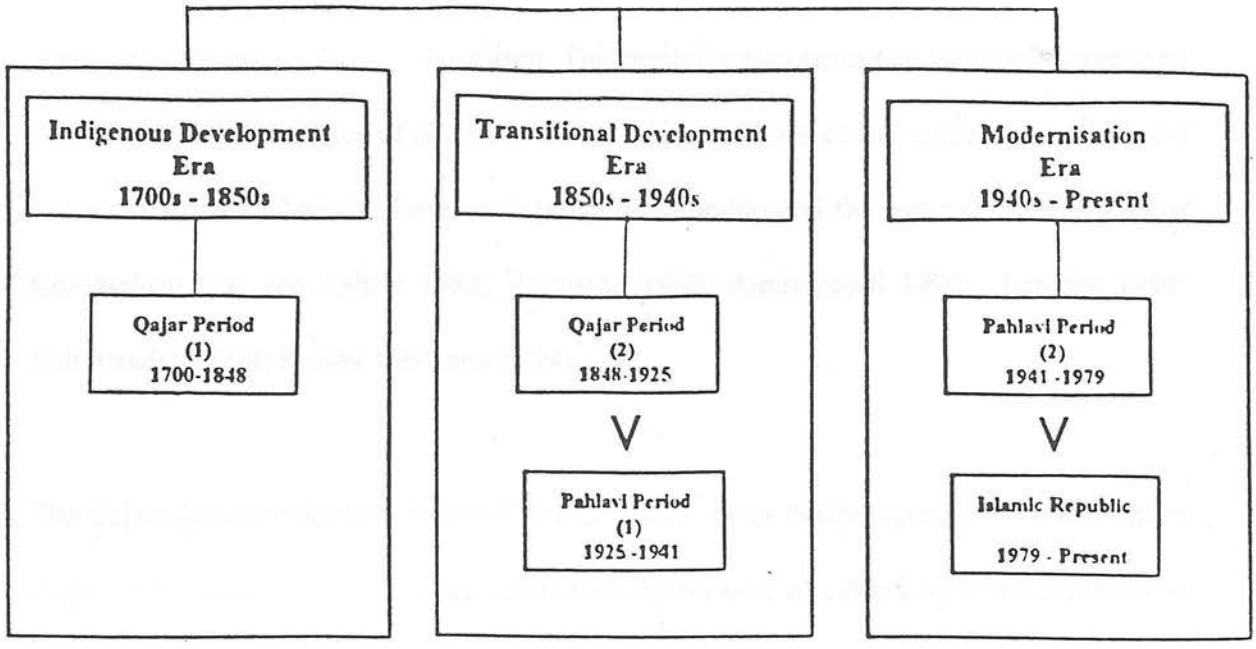
Figure (2.2) - Tehran`s development from the 1860s to the present day



Source: Habibi S. M. (1990)

2.3. Tehran`s Urban Development During Historical Periods

Figure (2.3) - Historical periods of urban development of Tehran from 1700s to the present time



Source: Barati N. (1997)

2. 3.1. The Period of Indigenous Development (up to 1850s)

The urban development in recent centuries above all could be considered as strongly influenced by political situations. To understand the process of changes in Tehran in terms of its physical conditions, therefore, one has to have a brief idea about the political situation and political changes in the country as a whole. To fulfill this objective there follows a discussion of the political conditions in Iran and political interrelationships with the other countries during three periods of urban developments in Tehran along with the socio-economic and physical analyses.

2.3.1.1. Political Situation (1700s - 1800s)

The beginning of Tehran's life as a town is marked by the beginning of a new regime in Iran,

'The Qajars' which transferred the capital city from Shiraz, to Tehran. The Qajar dynasty period (1779-1925), coincided with fundamental social, political, and industrial changes in Europe, for instance the French Revolution in 1789. In Iran this period was associated with many crises and problems which have led it to be known as one of the most chaotic and destructive periods in the history of Iran. This period is also considered as the beginning of the simultaneous influence of two phenomena which are alien to this culture and which did not exist together before, these are internal dictatorship and the external intervention of Colonialism (i.e. see Ashraf 1981; Robinson 1989; Amirahmadi 1990; Lapidus 1991; Sultanzadeh 1994; Habibi 1990 and 1994a).

The Qajars dynasty ruled Iran from (1779-1925) when it was finally replaced with the Pahlavi regime. This, generally was a weak centralised regime that was faced with many internal as well as external problems. According to Lapidus (1991) the Qajars came to power after a period of anarchy and tribal struggles for control of the Iranian state. However, their regime was never consolidated. Qajars, generally, never dealt effectively with the problems of the country. Similarly to other dictatorship regimes, the Qajars had no national popularity and consequently it needed support from outside. On the other hand, the very strategic location of Iran with its different raw materials inevitably attracted the attention of all great powers at that time, particularly after the overthrow of the Ottoman Islamic Empire (see also Bavar C. in Golany S.G. 1983).

After the First World War, when the world's political geography changed, Britain was the great power that profited most from the break up of the Ottoman state and started to build its political career in the Middle East. One of the most important countries in this strategic region naturally was Iran. The external political relations of Iran with foreign countries in this

time can be characterised by strong relations between Iran and Russia (later the Soviet Union) on one hand and Iran and the Western countries, particularly Britain and America, on the other.

The historical root of all events that took place during the nineteenth and twentieth centuries in Iran lies in to the sixteenth century when the founder of the Safavid dynasty (1501-1722) in Iran, Shah Ismail I (1501-1524) established the first independent government in Iran from the Ottoman Islamic Empire. It was, actually, the first nationalist Iranian government after Islam. Reinforcing independence Ismail also accepted Shi`ism as the official Islamic school of thought in Iran whereas the official religious school during the Ottoman Empire was Sonni. The immediate reaction of the Ottomans was furious anger which led to several Iran/Ottoman wars. Europe, as a traditional enemy of the Ottomans, naturally initiated a close relationship with the central government in Iran. Iranian`s high position in terms of its culture, and the politico-economic conditions led to the continuation of some mutual relations with the European countries. The industrial revolution in Europe and the rapid development in industry, wealth, and militarism together with the retardation of Iran because of the political weakness of its rulers, the chaos which existed in the general life of the country, then Russia`s interventions, civil wars, starvation, and so on gradually unbalanced these relations.

Continual politico-economic pressure from the north, that is the Russians, provided enough space for incompetent Qajar kings to lean on the Europeans, particularly Britain. Consequently, Iran was no longer an independent country. As a result Iran from that time became the scene of severe competition between Russia and Britain and later, during the Pahlavi period, with America. The discovery of oil in southern Iran by the British worsened the situation by increasing the activities and involvements of the foreign countries in the

affairs of the country.

The problem for the Western countries, when dealing with Iran, was Russia. Russia, taking advantage of the weakness of the Qajar regime had already gained some precious concessions and was developing strong means of penetration. Robinson F. (1989:P. 143) argued that "the Russians aimed to extend their possessions in Iran as far as was feasible and to lay the foundations for the commercial and political domination of the remainder of the country". But above all Russians were always eager to reach the Persian Gulf in the south of Iran through which they would have access to the Indian and South Atlantic Oceans.

Initially the European posture in political terms towards the Qajars was determined by the Russians incursions in 1813 and 1828, when they were able to occupy some considerable part of north-western Iran. The treaty of Gulistan (1813) confirmed the loss to Russia of Georgia, Darband, Baku (Azarbiyjan), Shirvan, and some parts of Armenia. By the treaty of Turkmanchai (1828) Russia obtained Armenia, control of the Caspian Sea, and a favoured position in the Iranian trade. These systematic operations of encroachment continued until 1885 by which time all central Asian parts of Iran were occupied by Russians. The same things happened in Afghanistan where Britain, seeking its own interests, wanted to have the same concessions. The imposed treaties between Iran and Russia (1813, 1828), as well as between Iran and Britain in 1855 not only separated vast territorial lands from the northern and eastern parts of Iran [Afghanistan] but also by giving affective concessions, i.e. Capitulation, and trading advantages, provided more space for those countries to expand their economic influences in Iran (Ashraf 1981; Lapidus 1991).

2.3.1.2. Socio-Economic Situation (1700s - 1850s)

In political terms, this period can be characterised by numerous internal problems as well as encounters with Tsarist Russia. The economic condition of Iran in this period was characterised by the dominance of feudalism and agricultural economy. From an industrial point of view, Iran did not have the same advanced position as it had in the past, for instance, during the Safavid dynasty of the sixteenth century. In this period the country industrially produced goods such as cloth alongside other traditional artifacts. Craftsmen used to be one of the main groups of city dwellers at that time (e.g see Ashraf 1981). This period in Iran coincided with the emerging industrialisation in Europe which affected the Iranian economy deeply later on.

In the capital city of Tehran shared cultural values and traditions made the different social classes live together to form a coherent society. The significance of mixed social classes in the quarters, so that rich people lived side by side with craftsmen and workers, is that the close presence of influential people led to a relatively balanced situation in terms of the distribution of social powers all over the town. The existence of this balance of people with different status led to the creation of unity and coherence within which economy, religion and customs were equally important to all members living in the quarter (i.e. see Amirahmadi 1990; Zaadboom Consultant 1994).

Also of great social significance in this period is the system of social and individual responsibility for every quarter, 'mahala', not only regarding physical issues but all aspects of the environment. Neighbourhood relations, for instance, affected by religious and social values, made the social group of a mahala one big family. Every social and development activity was done by the people. Of course the rich had more responsibility and there were

many reasons and ways for this particular group to participate in the quarter`s maintenance or development. The Islamic tradition of Waqf, the practice of giving, for example, a continual fund for the building and maintenance of public buildings from the estate of a person after his death, was one of the most important contributions of rich individuals to public buildings and services.

2.3.1.3. Tehran`s Physical Structure (1700s - 1850s)

Tehran in the thirteenth century was a rather large village about 10 Km North-East of ancient city of Rey and was surrounded by a zone of gardens serving as a green wall (Semsar 1987; Madanipour 1989; Zaadboom 1994). Rey from 800s to 1200s was one of the most significant and populated Iranian cities although the archaeological discoveries, so far, have shown that it had been a human settlement for more than 6,000 years (Semsar 1986).

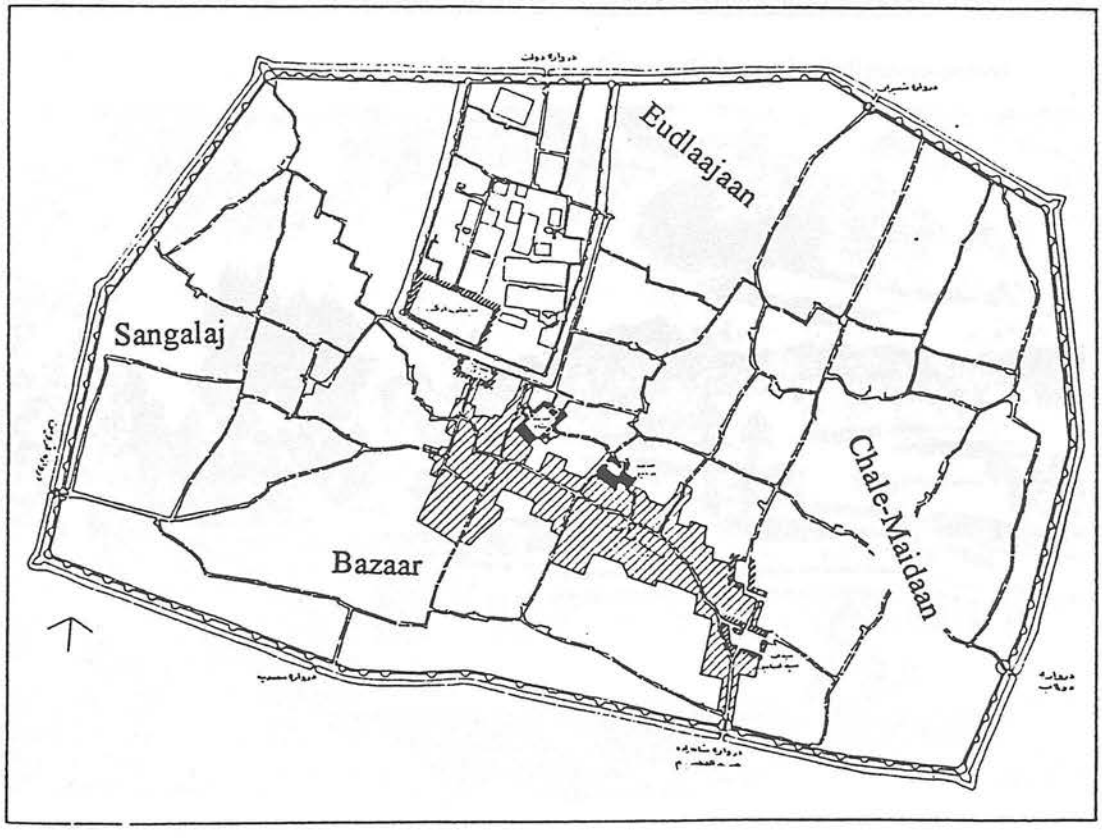
Clavijio, the Spanish ambassador to Timur, described Tehran, in 1404, as a very large village with no walls, well supplied with everything, and fascinating (Syker quoted by Madanipour 1989). After several natural disasters and the Mongolian occupation Rey began to decline and as a result, Tehran was given the opportunity to take advantage of this situation (e.g. see Zanjani H. 1990). What remained from the glorious ancient town of Rey today is just one of the southern regions (areas) of Tehran.

The strategic location of Tehran and its gardens attracted the Safavid king, Tahmasb, who in 1553 built a small bazaar and a wall around it, giving Tehran the status of a traditional Iranian town. The circuit of the wall was six thousand steps long in with 114 forts, embodying the pattern of the 114 chapters of the Quran, with four gates and a moat (Semsar 1986; Madanipour 1989; Zaadboom Consultancy 1994). Similar to the other Persian towns,

by Madanipour 1989). The Safavid king, Solyman (1667-1697), had a palace built there.

Mohammed Karimkhan-e Zand, the founder of Zandiyeh (1750-1779) in early 1750s was about to select Tehran as the Capital, and ordered some buildings to be built, but in 1762 he changed his mind and left Tehran for Shiraz (Semsar H. 1987; Zaadboom Consultancy 1994). The physical and socio-economic conditions of Tehran, as a town, developed gradually till 1788, when the town was selected by Aqa Mohammed Khan, the founder of Qajar regime as the Capital city of Iran (Jamalzadeh 1921; Madanipour 1989; Amirahmadi 1990).

Figure (2.4) - Map of structure of Tehran during indigenous period indicating town wall, citadel, bazaar and four quarters (Eudlaajaan, Sangalaj, Chale-Maidaan and Bazaar)



Source: Tavassoli M., et. al. (1992)

Figure (2.5) - A view of Tehran`s townscape during the indigenous period

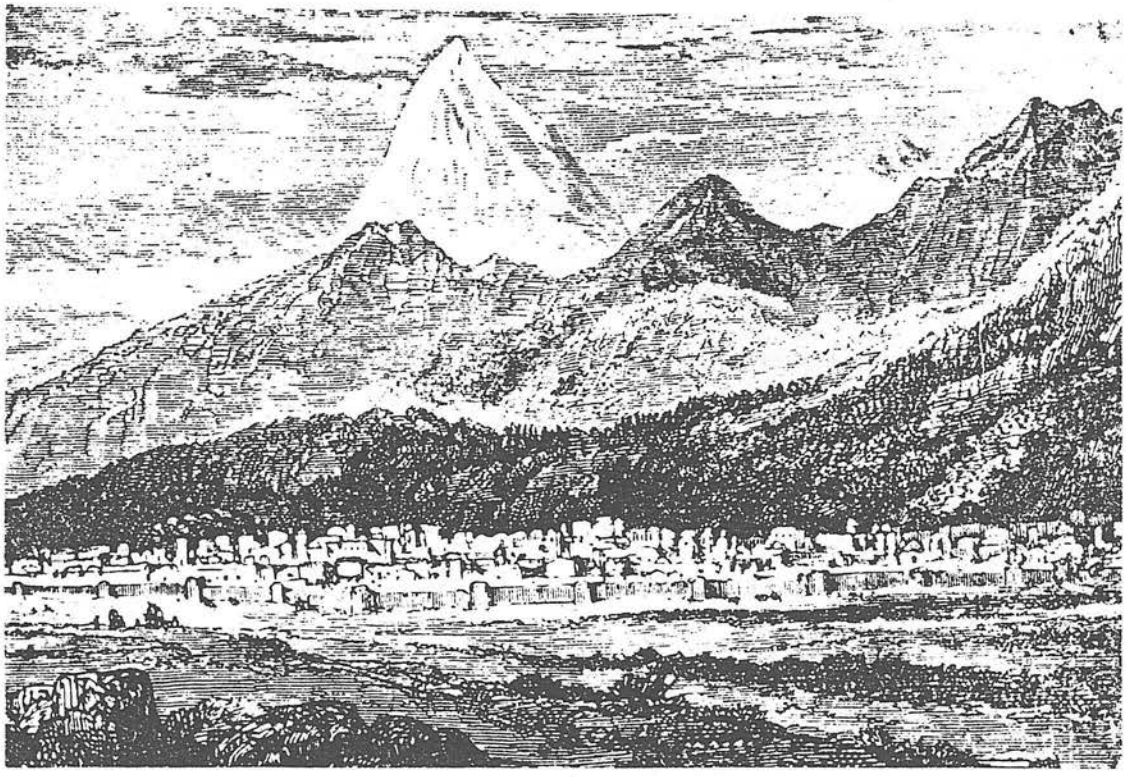
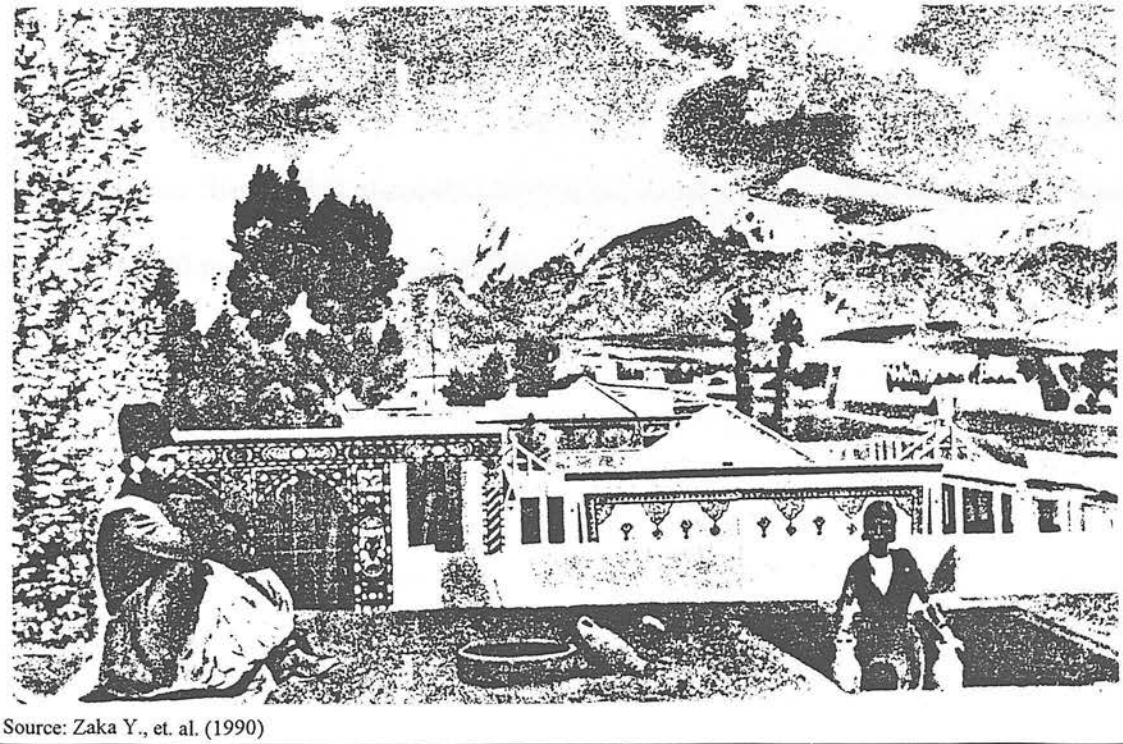


Figure (2.6) - A view from Tehran towards the mountains of the north during the indigenous period



Source: Zaka Y., et. al. (1990)

Becoming the Capital, Tehran started rapidly to flourish. In 1797 the city had an area of only two square miles with a population of 15,000, but after about a decade there were about

50,000 people there.

The French tourist G. A. Olivier in his book of 1796 mentioned that in spite of the huge efforts of Aqa Muhammad Khan, the founder of Qajar regime, Tehran had no ability to attract more than 15,000 people (Jamalzadeh 1921). James Moriye the British ambassador deputy in 1807 criticised Tehran for its mud simple buildings and epidemics. However he recorded four large schools, 150 carvansarais and the same number of public baths, two large squares, and two palaces in Tehran. The bad conditions of Tehran particularly in terms of health and hygiene were mentioned by several travellers in this period (Semsar 1987).

By 1869 the circumscribing walls of Tehran were more than one Farsakh (4 Miles) and had six gates. The earliest wall enclosed four main quarters in 1780s. These quarters were called: Sangalaj, Eudlaajaan, Bazaar, and Chale-Maidaan. Every quarter contained variety of social classes, from the governors and close relatives of the king to the high level of the clergy, traders, craftsmen, and workers (see Madanipour 1989; Amirahmadi 1990; Sultanzadeh 1995). It is said that in 1891 about 250,000 people were living in Tehran with 18,000 houses, 400 baths, 200 mosques, and four churches.

Therefore the quarter was even more all a socio-cultural pattern rather than a physical one. This adopted social and physical structure, which was the transformation of cultural knowledge is intelligible in people's minds as in their symbolic systems, i.e. language (see Chapter Three for more details).

Madanipour (1989) stated that in terms of urban form, the quarter system was the manifestation of the existing socio-economic structure. Every quarter has its own centre and

also a specific social and physical personality. The spatial relationship between different spaces all over the town, on different scales, was actually the physical manifestation of a socio-cultural relationship between the groups. Not only the physical pattern and organisation but also invisible social values determined the unity of the mahala. This kind of relationship still exists in traditional Iranian towns today (e.g. see Motawef S. 1996).

There were two patterns for the quarter centres. The first pattern is a linear form in which all the public spaces like the mosque, the public bath, the small market, the coffee shop, the water reservoir etc. were built along an axis. The second pattern was a square form which included most but not all of the public spaces and services (Sultanzade 1991). All the district centres were used in public rituals and ceremonies. The public bath is a centuries - old institution which had always been associated with the mosque and water reservoir, together with coffee house and local shops, these form the nucleus of public services in the centre of the neighbourhood (Madanipour 1989).

In the traditional town every community had its own services that were built by the local people and was maintained and supported by the people themselves. The various accesses in the traditional texture have got some specific characteristics by which one was able to recognise them from another. The narrow accesses, Kooy, Kooch-e, and Paskooch-e, were under the responsibility and control of the neighbours to varying degrees according to whose buildings bordered them. In this hierarchy Paskooch-e, the last, narrowest and closed one, was a semi-private space for the neighbours with social significance, socialising space and playground for children. The main road usually used to pass through the community centre, therefore some small shops such as the butchery, bakery, grocery, were located there. The community mosque and public bath were also concerned with this road. These buildings and

spaces were the elements that confirmed the status of the main roads. The maintenance and management of mahallaat (collective noun for mahala) were part of the neighbourhood responsibility (Sultanzade 1991).

The cohesiveness of a quarter was sustained by the separation of incompatible activities. Therefore, the cohesiveness of the entire city was sustained through a functional relationship of compatible activities. Homogeneity of similar and contradictory activities in organisation of the different functions is one of the most significant criteria of the road function relationship in traditional urban fabric. This kind of unified spatial criteria, built along linguistic interrelations with the built environment, makes the urban environment legible. So from the real physical pattern, or through a code or a layer of naming, people could tell what they were going to face in a particular area or space and what they were expected to do there. In other words what people have in their mind about the environment, the symbols they were familiar with, and the built environments became homogeneous and united in a whole context.

Squares, (maidaans), and some passages in the traditional urban fabric were multi-functional spaces. They were used for public socialisation and communication as well as for trading, sport events, or military performances. In traditional Tehran there were many squares of which the most important of them are Ark Square, Toopkhaan-e Square, Hasan Abaad Square, and Sabs-e Maidaan Square. The process of change and evolution associated with these squares is one of the best records of political changes in Iran. There were other types of squares that were mostly used as access spaces. These kinds of small squares, Tak-yeh, were usually only used for one month 'Moharram' every year for religious ceremony. For the rest of the year these kinds of spaces, if they had permanent structure, were used as meeting

places, or play grounds for children.

The stopping points and the cross roads in passages were designed in a distinctive way to allow for extra air circulation, and light (through the open oculus of a dome). These spaces had a distinctively social atmosphere. Indeed it was often at these points that public spaces such as coffee houses were located. In Bazaars, for instance, when two roads cross each other the space was given a specific name, Chahaar Suq (= four market rows cross), and this place receives special attention and particular design treatment. This space would be used in some ceremonial occasions such as religious rites (e.g. Sultanzade 1991). There is a multi functionalism that seems to be related to transformation of the holistic view in Iranian culture into the spatial organisation. In the house, for instance, the court yard was used in different ways: a place for socialising, holding various ceremonies, a play ground for children, etc. At the same time it was the symbolic representation of the paradise on earth. Similarly a room also could well be used in different ways a living room, dinning room, bed room, praying room, etc. This is a very complicated phenomenon for the scale of the room, its furniture, its decoration, its accessibility, etc. had to be matched with multiple functions. More important are the people's images and perception that there should be structures in the way to accept these kinds of spaces and act accordingly. These interconnections cannot be seen or understood unless they are examined in a context (see Chapters Four and Five).

One of the characteristics of Iranian traditional architecture is to seize every opportunity in order to mix the social life with the physical built elements. The town gates, entrances related to the private houses or public spaces such as mosques, schools, and so on, roads and even bridges in the vernacular built environment were designed as part of socialising spaces. Similarly, accessibility in traditional towns has important social functions because a

considerable part of the social life was held in these passages. This was part of the sophisticated pattern of neighbouring relations (see Chapters Four and Five). The house gate itself had lots of characteristics that not only indicated the cultural identity in some ways but was also important in additional matters where each responded to one social value or norm.

Even after building its walls, Tehran was surrounded by suburb gardens and villages to the extent that some travellers described it as a town within a forest or a town of mud in an oasis of plane trees. Some gardens, like Yousef Abaad and Behjat Abaad were within a short walking distance from the walls, which became new quarters subsequently (see Madanipour 1989).

In the first period, "Indigenous Development Period", the built environment, in spite of the presence of a long and severe dictatorship in political terms, was strongly affected and dominated by the local culture. It is possible to refer to two reasons for this cultural dominance:

1) Local resources, technology, materials, climatic conditions, and building knowledge enforced the government to lean on local architecture and the way built environment was developed.

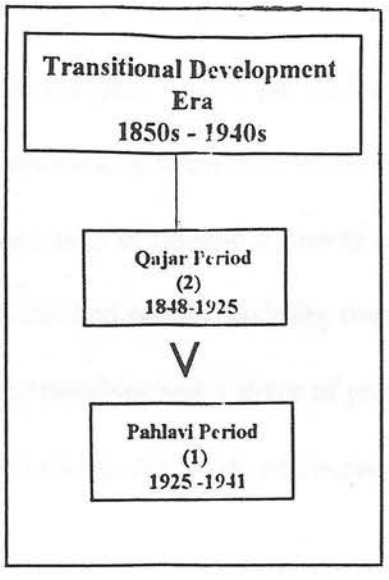
2) Even if there had been a tendency to impose some strange ideas in terms of development of the built environment, it would not have been possible because of limitations in the availability of controlling tools.

During this period, although there were no pre-structured town plans and formulae, there was no doubt in public terms about what kind of criteria should be obeyed and what kind of forms and functions should be considered when there was a new expansion in the built

environment. It seems that an invisible pre-structured built environment has been highlighted by the eighteenth and nineteenth century developments. This is because the urban environment was built by the people responding to the whole cultural knowledge while included their culturally described needs, symbols and values. In other words, in spite of using different materials associated with relative wealth, and in various scales, the same rules were followed and led to a relatively homogeneous built environment. The central government, on the other hand, had no tendency, or, it could not have, to control the way the urban fabrics were developing.

2.3.2. The Period of Transitional Development (1850s-1940s)

2.3.2.1. The Political and Socio-Economic Situation During Transitional Developments (1850s-1940s)



This period consists partly of the Qajar dynasty period as well as a part of the Pahlavi regime, therefore the political and socio-economic situation in this period will be divided into two parts. Part one (A) represents the period starting from the 1880s when Nasir-Al-Din Shah took power as the fourth Qajar king. The second part (B) represents the period from the 1920s, when the Pahlavi regime replaced the Qajars, to the 1940s when the second Pahlavi king gained the throne.

A1. The Political Situation During the Qajar Period (1850s-1925)

The transitional period is the period in Iran within which many basic changes in all aspects of Iranian life started. This period started from the reign of Nasir-Al-Din Shah, the fourth of Qajar kings (1848-1896) and ended by 1940s when the first Pahlavi king, Reza Shah, abdicated as a result of pressure from the Russians and the British. In this period external as well as internal pressures provided the possibility for huge changes in the society and built environment. But even this political change was not able to solve the country's many problems, particularly those caused by both the regime's internal dictatorship and the external interventions.

One of the results of the competition between Russia and Britain in Iran was the serious reciprocal concessions they gained from the King in the Qajar period particularly during the Nasir-Al-Din shah reign. In this mutual giving of concessions many interventions in the built environment were introduced. For example "a monopoly of rail and tramway construction, and also exclusive rights to mine numerous minerals and metals, building roads" amongst others were given to British investors in return for royalties and a share of profits given to the Shahs (Lapidus 1991: PP. 574-75). The king, Nasir Al-Din Shah, of course, had to give the same concessions to the Russians.

Ashraf (1981) calling this period [before 1920s] the semi-colonialism period, explained that this condition was the result of severe competition between two strong foreign countries (Russia and Britain) for more politico-economic influence in Iran. They did not to control or may be they could not control the country directly as a colonialised country, therefore, instead, they preferred to divide it into two influential territories. One of the main strategies

for Russia and Britain, naturally, was to expand their own territories in every aspect of Iranian society from politics to economics and social issues. This situation had serious consequences in all aspects of life in Iran. They controlled the central government in different ways and did not want to give any opportunity for indigenous development. They always tried to influence the elite and the aristocrat along with the royal family, on the one hand, and make chaos in the various regions of the country, on the other.

One of the chief reasons for foreigners being attracted to Iran was the discovery of oil. Oil was first found in the southern region in 1908, and 1909 the Anglo-Persian Oil Company was founded to exploit it. The British government acquired the controlling interest in 1914. The first refineries were constructed in 1915 in the south of Iran near the Persian Gulf. Oil discovery ignited competition between the European countries and Russia during this period. Iran became a central cause for consideration in the geo-political affairs of the world. In the context of this spotlight the Qajar regime, who had already started modernisation, began to see the West not simply as the best example but as the only example of development.

In this period there were many cases in which the clergy, Ulama, along with merchants, artisans, and intellectuals cooperated in the political struggle against the king and his decisions. One of these cases was the struggle between these groups and the Court which culminated in the constitutional revolution and the establishment of Iran's first parliament, Majles-e Shoora-e Melli, between 1905-11 (e.g. see Robinson 1989; Lapidus 1991).

In 1907, in the last years of Qajar dynasty, an Anglo-Russian agreement "divided the country into two spheres of influence -a northern and a south eastern zone- with a neutral buffer in

between. In order to calm their own dispute in anticipation of a general European war, the powers allowed Iran to remain nominally independent and its monarchy intact, but effectively assumed control of the country." (Lapidus 1991: P. 574).

Therefore, weakness in the Qajars brought the country to the point of being divided into two politically influential sovereign parts between Russia and Britain. Lapidus (ibid.) also argues that the modern Iranian state rose out of a period of near anarchy from 1911 to 1925. During this period foreign intervention reached its peak. In World War I Russian troops were garrisoned in the northern provinces and British troops occupied the south. The point here is that with the collapse of the Tsarist regime in the 1917 revolution in Russia, all of Iran fell into British hands; and the Anglo-Persian treaty of 1919 made Iran a virtual protectorate of Britain.

Saremi (1991) argues that the Qajar kings were more inclined towards Europe than Russia. When they started to have continual visits to Europe fundamental transitions in the Iranian arts and architecture emerged. These developments were well received and supported in Europe. Indeed these kinds of feeling later on were parallelled by feelings of cultural self-revulsion in Iran (Rajaii 1991). The idea of sending students to Europe started during the Qajar period. On the one hand, attention to modern sciences and industries, and particularly military activities led to the invitation of some skilled western military, engineers and cartographers to Iran. On the other, this led also to the dispatch of groups of students to the West (Adami-at in Ketab-e Tehran 1992). State centralisation, economic modernisation, and a new educational system, consequently, helped to create an elite of army officers, bureaucrats, merchants, contractors, doctors, lawyers, engineers, teachers, and writers, who adopted Western values and a Western life style (i.e. see Ashraf 1981; Lapidus 1991).

Economic dependency followed the political dependency on the West. Curzon (quoted by Ashraf 1981, translated by the author) explained this period by saying that at that time, Western luxurious goods began to be very popular among Iranian aristocrats but then all social classes in this country came to consume Western goods, cloth in particular. He noticed how even in the remote villages in Iran British cloth came to be more in demand than Iranian cloth. The same attitude later was transferred into the built environment. So what had been strange was considered 'good' and 'Western', 'khaaregi', in local language, which means 'foreign stuff'!

In the transitional period Western influence created a vogue in upper-class government circles for the reform of Iran's military and governmental institutions along Western lines. These were followed by different concessions which contributed in a major way to the emergence of many new environmental changes and the emergence of many different buildings, spaces etc., particularly in Tehran, such as tramway, grand hotel, and so on. European commercial activities also generated a small Iranian bourgeoisie which prospered from the roles of middlemen in the exchanges between Europe and Iran (Lapidus 1991).

The main characteristic of this period in terms of politics is a matchless dependency on foreign countries. Lapidus (1991: P. 551) argued that "in the nineteenth and early twentieth centuries, European states, driven by the need of industrial economies for raw materials and markets, and by economic and political competition with each other, established worldwide territorial empires." Two of these countries, Britain and Russia, had a wide and deep influence on Iran's internal politico-economic situations in this period. It is possible to argue, therefore, that what is called modern Iran is the result of interaction with the Western countries and Russia, on one hand, and with the Iranian society, on the other. In political

terms it is possible to argue that this era was the scene of interaction between colonialist tendencies and policies from outside and modern dictatorship from the inside. Two important changes in this period, the constitutional revolution in 1905-6 and emergence of the new Pahlavi regime, in 1925, did not provide a better situation in terms of dictatorship but make it more complicated.

From this time onwards the encroachment of an unrealistic view to human lives and the environment in Iran had created a particular situation in which any reforms along European lines could be reached and understood only by a small part of the upper class population and Western-educated intellectuals. Naturally such reform would never touch the mass of the population. In such conditions one would expect a serious shift in the way people understand or interact with their own environment and the values associated with it.

A2. The Socio-Economic Situation During the Qajar Period (1850s - 1925)

As explained previously, this important period in the political history of Iran is marked by strong competition between Russia and Britain, on the one hand, and weakness of the central government, on the other. The discovery of oil highlighted the competition between the Europeans, specifically Britain, and Russia now that Iran was going to become a producer of the most important raw material for industrialisation, and, simultaneously one of the largest potential markets in the region. Although in the Qajar regime lots of positive events, such as The Constitutionalism Revolution happened and the first parliament in Iran became effective, the political and economic situation of Iran continually deteriorated. The country was faced with economic shifts such as the transferring from local and small industries to a situation in which Western producers replaced local ones. As a result, industrial producers

later closed their factories and started to import western ready made commodities (ref. Ashraf 1981; Lapidus 1991).

After constitutionalism a new middle class in Iranian society gradually emerged. Beyond the royal family in Iran the relationship between this new bourgeoisie and their European counterparts was the main force in founding the basis for the European modernism which has broken into the local culture. In this kind of urban development, instead of adopting real socio-economic changes, all attentions was concentrated on changes in the physical urban fabric. In other words, cultural evolution, including socio-economic improvement, was not seen as a base for physical development. On the contrary, the regime wanted to impose a specific kind of development that started with the physical environment leaving strong consequences on indigenous social and economic conditions.

In the late nineteenth century the class structure in Tehran, as with other Iranian urban areas, was made up of the upper class, which included the aristocracy, the courtiers, the landlords, the upper level of clergy, and the rich merchants. The middle class included vast groups of people who worked as merchants, craftsmen and retailers. Finally, there were the lower classes that were made up of unskilled labourers. Although there was separation between classes, it was not obvious because they lived relatively close together all over the town.

B1. The Political Situation During the Pahlavi Period (1925-1940s)

In 1921 when the political condition in Iran was at its worst, and the country was governed by a succession of ineffectual cabinets, an agreement between the British authorities and an Iranian officer in the Cossack Brigade, Reza Mir Panj, brought him to power as Head of the

army and then Minister of Defence. After six years the last Qajar king was exiled to Europe by parliament and the new, Pahlavi monarchy, was announced by the ex-military general.

In 1925 Reza Mir Panj, now Reza Pahlavi, crowned himself as the founder of the new monarchy regime in Iran (1925-1979). In the final period of the Qajar regime the competitive influence and interference of Iran`s northern communist neighbour, Soviet Union, and the European countries, particularly Britain had reached its climax. Indeed, some governmental key posts were given to both Russians and British at this time (Rajaii 1991).

Under the rule of the Pahlavis, in spite of the existence of constitutionalism, a strong centralised government was created for the first time in Iranian history. In the beginning when Reza Shah came to power he achieved this with the support of many influential groups, e.g. Ulama (the senior clergy), intellectuals, and so on, who wanted to see a restoration of the monarchy and looked to a strong government to resist foreign influence. Once established, however, the Pahlavi regime took a political direction through which many problems arose. Indeed, the Pahlavi state was defined in nationalist ideological terms, and was committed to the implementation, under authoritarian rule, of an ambitious program of economic modernisation and cultural Westernisation (e.g. see Lapidus 1991) because, from their own point of view, modernisation was not possible without westernisation.

In the 1920s and 1930s, the Russian and British influences remained relatively balanced. Russia was an important trading partner while the British controlled the production of oil. To offset the influence of these two powers, Iranian trade was re-orientated toward Germany (Lapidus 1991). Sheikho-Al-Islami (1990) argues that after the Communist Revolution in Russia the competition between Russia and Britain in Iran ended very much in favour of

Britain.

In such a complicated situation the Pahlavis, as a secular regime, received strong support from the West in order to fight on two fronts, against religious-nationalists and communists. These challenges continued to the last days of the regime in 1979. The built environment was one of the areas most affected in Iran (particularly in Tehran) by these challenges. There are many examples demonstrating the influence of secular policies in this period. Robinson F. (1991: P.145), for instance, argues that Reza Shah wanted the Iranians to adopt the outward symbols of a secular society. From 1928 men who were not Ulama (clergy) had to wear Western dress. From 1935 they had to wear hats with brims which had no history in the Iranian culture. Women also, from 1936, had to go unveiled, and police were employed to strip the veils from those who dared to ignore the Shah's command.

The impact of this situation left its marks on the built environment, as will be discussed later, in the form of many dramatic changes and developments from which the people and their beliefs, their value systems, and their identity were excluded. This was a time of encroaching fragmentation and contradiction between the inherited traditional and subjective values and new mostly physical and objective attitudes towards the environment as a whole.

In the indigenous development period which was characterised by the politico-economic competition between Russia and Britain, the Russians were finally the losers. This led to an even stronger tendency towards the European countries by the central government in Iran. As was mentioned, the transition affected the built environment deeply and in various ways although these interventions may have had both positive and negative consequences. On the one hand familiarising the Iranian society with the European culture led to the emergence

of democratic ideas and movements such as Iran's constitutional revolution and parliamentarianism. It also introduced a new era in terms of industry, education, health care, and so on. But one also has to bear in mind that Western influence led to the construction of a very centralised bureaucratic state. In other words, a modern dictatorship replaced the traditional one. In conclusion it is possible to say that environmental development in this period changed from being predominately indigenous to being mostly exogenous, based on Western values and world views.

The political situation in Iran in this period was very critical because, in terms of the built environment, this period was a transitional period from the vernacular style to what then was the Modern style. These modernisation programmes in Iran cannot be understood if the political situation of the country with the Russians, and also European countries is not examined.

In terms of economics the local economy was linked to global economy. The collapse of local economic activities was accompanied by a rapid increase in international trade mostly concentrated on the export of raw materials and the importation of consumer goods, the result of which is that the local industries gradually disappeared. Most economic activities were directed and controlled by foreigners and the central government had to borrow large amounts of money from other countries.

B2. The Socio-Economic Situation During the Pahlavi Period (1925-1940s)

After the dismissal of the Qajar regime and the establishment of the Pahlavi regime (1925-1979), Iran entered a period in which the economic system started to shift towards a from

of capitalism based on centralised and dictatorial rule. This new system, after providing the necessary basis for stabilising itself, started to rebuild the country according to Western models (Banani 1961 quoted by Amirahmadi 1990). In the new regime an adapted new aristocracy, a new elite, and new middle class emerged. The Pahlavi regime from the outset presented itself as a secularist regime and took a stand against the clergy, thinkers, and Islamic values. Reza Shah`s regime believed that Islam was the fundamental reason for Iran`s retardation (Bashiriyeh 1984) therefore one of its targets was to replace traditional culture including Islam, with his own secularist ideology and related policies. Following this policy many changes in Iranian society, e.g. urban textures, based on European styles, were imposed on the society.

Other serious threats for the Pahlavi regime came from the communist parties that were supported by Soviet Union. One could argue that the general political structure of Iran in this period included the central nationalist secular government (with its strong tendency towards the West), nationalist religious groups, and communists. This period is a very complicated part in Iran`s history and had many affects on the built environment.

The idea of yielding to Western civilisation gradually became the most vital ideology and strategy in Pahlavi`s terms not only in politics but also in economic, social, educational and consumer drives, as well as in the organisation and building of the environment. The process of seeing the West as the promised paradise led to the point where it seems that the Iranian national culture was placed under tremendous pressure. Reza Shah, the founder of the Pahlavi regime, when addressing students going to Europe to study modern science, told them that they were "not being sent there just to study the sciences but to be encultured as well", because he believed that "if Eastern nations want to be encultured they should go to

the West" (c.f. Rajaii 1991: P.18; Bazargan 1992). It seems that the main reason to say this is that there had been a radical misunderstanding of the concept of 'culture', because culture was being treated as something global rather than local (see Chapter Four for more discussion).

The other threatening force posed against local culture in Iran, popular with several groups of educated people during the Qajar-Pahlavi periods, was Marxism. The Marxist materialistic world view naturally would not tolerate local cultural knowledge and values. One editorial (of a left wing Iranian journal in 1948) suggested that: "There is no doubt for any one that Western civilisation is the basis of prosperity and salvation and if any one denies this fact there is no choice for us but to call him sophistic or foolish and stupid" (Yaadegar Journal 1948 quoted by Rajaii 1991). Consequently, attacks on culture, including religion, in the name of secularism entered the new dimensions in which both right and left secularist parties had become associated with it. The Communist Party`s interpretation of culture never allows it to find a strong position in Iran although they always received full support from the Soviet Union.

The Pahlavi regime considered the West as the best model for Iran`s development and to uphold this had to face groups whose cultural beliefs ran against such a stance, as well as the groups which believed in Marxism or Communism. Faced with these tendencies the regime created its own ideology. The result of this ideology in terms of intervention in the built form is clearly seen and shows direct derivation. Believing in the West and receiving great support from European countries gave the regime strong reason to stand against its own active and potential challengers. Against the powerful Moslem society inside the regime developed a two-faced strategy. On the one hand, leaning on Western support, the Pahlavi regime started

to destroy references to Islamic traditions as much as possible, while on the other hand, it started to use ancient pre-Islamic Iranian cultural background and symbols. This ideology influenced all aspects of daily life, particularly in terms of the Iranian built environment. These policies significantly present the transition period in which the vernacular fabric was located beside combined European forms and textures.

2.3.2.2. Tehran`s Physical Structure During the Period of Transitional Development (1850s-1940s)

Transition from the traditional built environment to the modern, started from the Nasir-Al-Din Shah reign (1848-1896) and continued to the Reza Shah period (1925-1941). Before Nasir-Al-Din Shah, the fourth Qajar king, the influence of Western countries in Iran was not as obvious in terms of the built environment, but from then on, some considerable changes started to happen. As a result, the Nasir-Al-Din reign period, is seen in this research as the beginning of the transition from indigenous evolution into modernist change. Sayfian, architect and Principal of the Faculty of Fine Arts in the University of Tehran between 1987 and 1994, argued that the basis of modernisation approach in Iranian life started from the middle of the Qajar period (Sayfian 1991). Pirnia, professor in Iranian traditional architecture, believes that this movement which became stronger during the middle period of the reign of Nasir-Al-Din Shah, disconnected from each other all the Iranian interconnected arts such as literature, poetry, painting and architecture. Every effort, he adds, which has been taken to compensate for this has so far failed (Pirnia 1991).

Implementation of these ideas has not only created some badly adapted developments in urban areas but also has led to processes of urban development that are under the strict control of the centralised state. The main characteristics of the transition period in

environmental changes are cracks in the social structure and dualism in the built environment. The dualistic relationship between local values and physical changes on the one hand, and past and present urban fabrics on the other, later led to the emergence of a totally disintegrated environment. If the objective was to form similar kinds of European-American societies all over the world (e.g. see Lapidus 1991), at least in Iran, not only this did not happen but also it created a large number of problems both on the social and physical levels.

Therefore, in spite of the existence of socio-economic stratification, the strength of communal bonds prevented the formation of a class consciousness and state-wide socio-political classes. The communities, whether tribal, rural, or urban, were almost all similarly organised hierarchically. The rich and poor were tied together particularly through tribal lineages, religious sects, regional organisations, and paternalistic sentiments (Abrahamian quoted by Madanipour 1989). Inherent in the diversity of the communities (whose unit could be a city quarter, a village, a tribal camp, a religious community, or a corporate organisation) was the communal conflict between these groups, not dissimilar to the strife in feudal Europe of the Middle Ages (Vance quoted by Madanipour 1989). The quarter itself was a kind of clan or tribe within which, alongside the ordinary people, the influential people in politico-economic terms used to live within all communities. It was indeed a balanced distribution of economic, political, and social powers throughout the traditional towns.

In the late Qajar time and the Pahlavi period the kings seem not to have seen the existence of a vernacular culture as an improvable system but one that was deficient. Hence they regarded it as something to be ignored, or to be changed by force through the imposition of outside ideas and physical tools, as well as by the replacement of the original social structure with social groups determined by their income and closeness to the Pahlavi regime. This led

to a situation in which a social classification started. When the influential people began to leave the traditional urban areas some basic changes emerged as follows:

1) The distribution of the upper social class all over the city was the basis of a relatively balanced power distribution in the various districts. After the separation of the upper social class from the rest of the town and the concentration of this group in north of Tehran, this balance, which matched Iranian culture and Islamic beliefs, collapsed.

2) The disintegration of the social classes led to a kind of social unconsciousness about the other groups.

This might have been seen as an improvement brought about by the emergence of capitalism in Iran but, on the other hand, it created many problems such as a deep socio-cultural dualism which still exists today, as well as the destruction of an understanding about culture, society, and environment. Such dualism brought uncertainty into the society about life and the environment, and a lack of opportunity for the culture to develop, or for other cultures to impose themselves. A good example of this is seen in the language and its ability to represent the built environment (Barati et. al. 1997; also see Chapter Five for detailed discussion). This phenomenon is not related only to meanings and words but also to the way the built environment and its elements were understood and described, i.e. a satisfactory explanation of the built environment.

Before the period of transition, built environmental developments had clear criteria of legibility and cultural and historical continuity. In this type of environmental development there was an unwritten public agreement about what the built environment was all about and the kind of attributes that it should possess. Therefore, in the traditional way of development

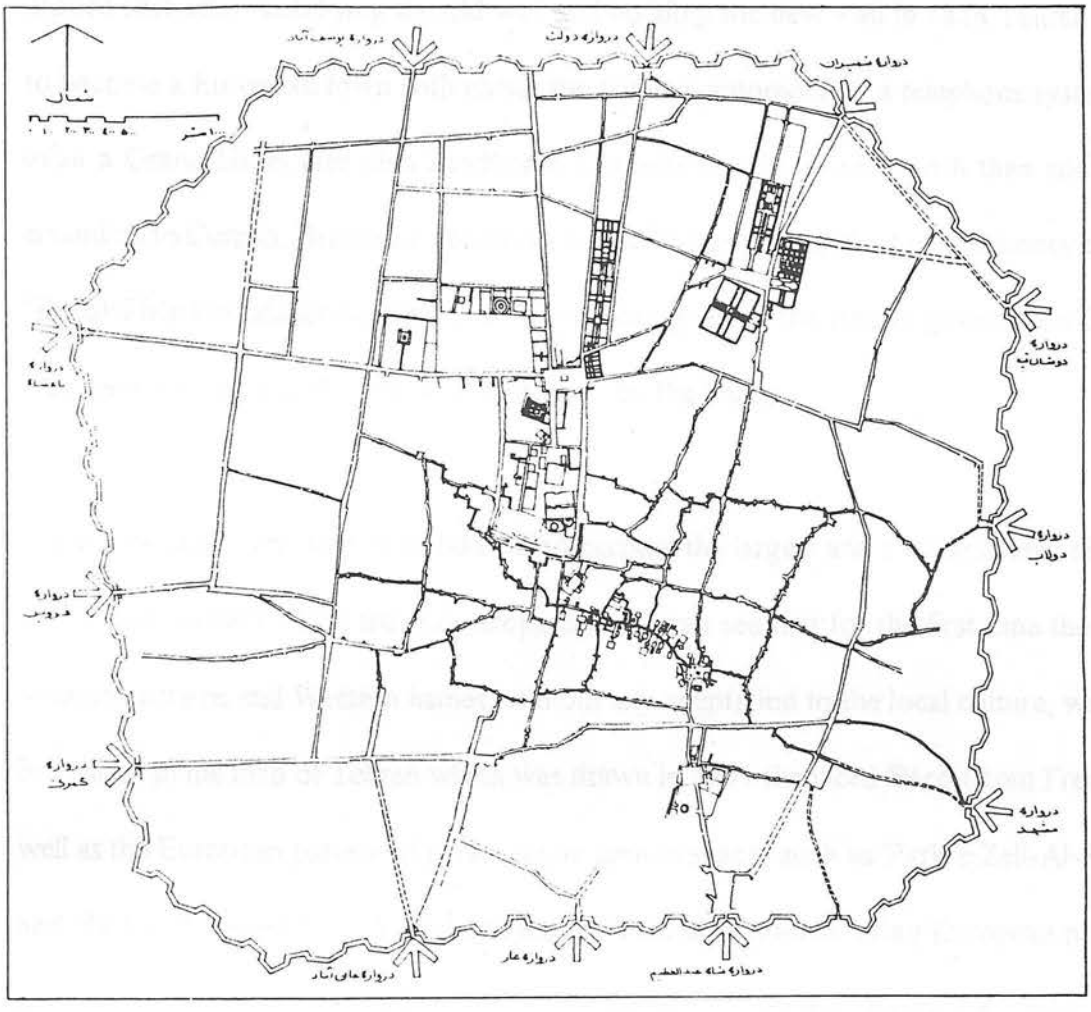
basic criteria have to be followed in any kind of scale or function in order to integrate it with the rest. As a result, from the material, function, geometry, and aesthetic point of view, all new buildings such as houses, mosques, bazaars, and water reservoirs had to follow the existing patterns and criteria. Then the talent of an architect mostly was concentrated on the way of combining these identified elements and resources, in order to create something new, rather than changing them. In this type of architecture, design boundaries were more identified and clear. The architectural elements were as clear as the words in the language structure so when one used them there was no need constantly to identify or explain them.

Tehran, from the 1860s onwards, started to change dramatically as a city form (Madanipour 1989; Zaadboom Consultancy 1994). In the Qajar regime, some important buildings and spaces which in effect reinforced the traditional texture of Tehran were built. The first Iranian hospital, the development of the bazaar, important town squares i.e., Sabze-maidaan, and Maidaan-e Toopkhaaneh, the Polytechnic College of Daar-Al-Fonoon in 1850, the Great Mosque, twelve quarters, with hundreds of houses and so on are parts of these developments (e.g. see Madanipour 1989; Sultanzadeh 1992; Zaadboom Consultancy 1994). Most of these buildings form the traditional texture of Tehran. They can be labelled as "traditional" because in terms of form, function, meanings and symbols, materials, and so on they still adhere to the main principles of the Iranian culture, indigenous architecture and language.

By 1867, in Nasir-Al-Din Shah`s time, Tehran had four quarters as in the indigenous period, which later increased to six (Amirahmadi, H. 1990). The point is that, in spite of some minor discrimination between the quarters in which the north quarter, Doulat, (the Citadel), was more significant than the other quarters (Habibi 1994a), every quarter had a combination of all the different classes in accordance with Iranian culture and social structure. The pattern

of the social environment, as well as city structure, was still dominated by culture as a whole rather than economics or politics (i.e.see Madanipour 1987). In 1869 the Qajar king Nasir-Al-Din Shah decided to develop the town and its surroundings. He ordered the existing wall and moat to be destroyed and new ones be built (figure 2.7).

Figure (2.7) - Main Structure of Tehran after Building the New Wall in 1860-70s During Transitional Period



Source: Tavassoli, M. (1992)

This new wall was based on the later generation of architecture derived ultimately from French military engineer, Vauban (i.e. see Jamalzadeh 1921; Semsar 1987; Zaadboom 1994). The new wall and its fortifications were completed in 1874. At this stage the circumference of the new town land was about 7.5 miles (Jamalzadeh 1921; Semsar 1987). Tehran`s gates,

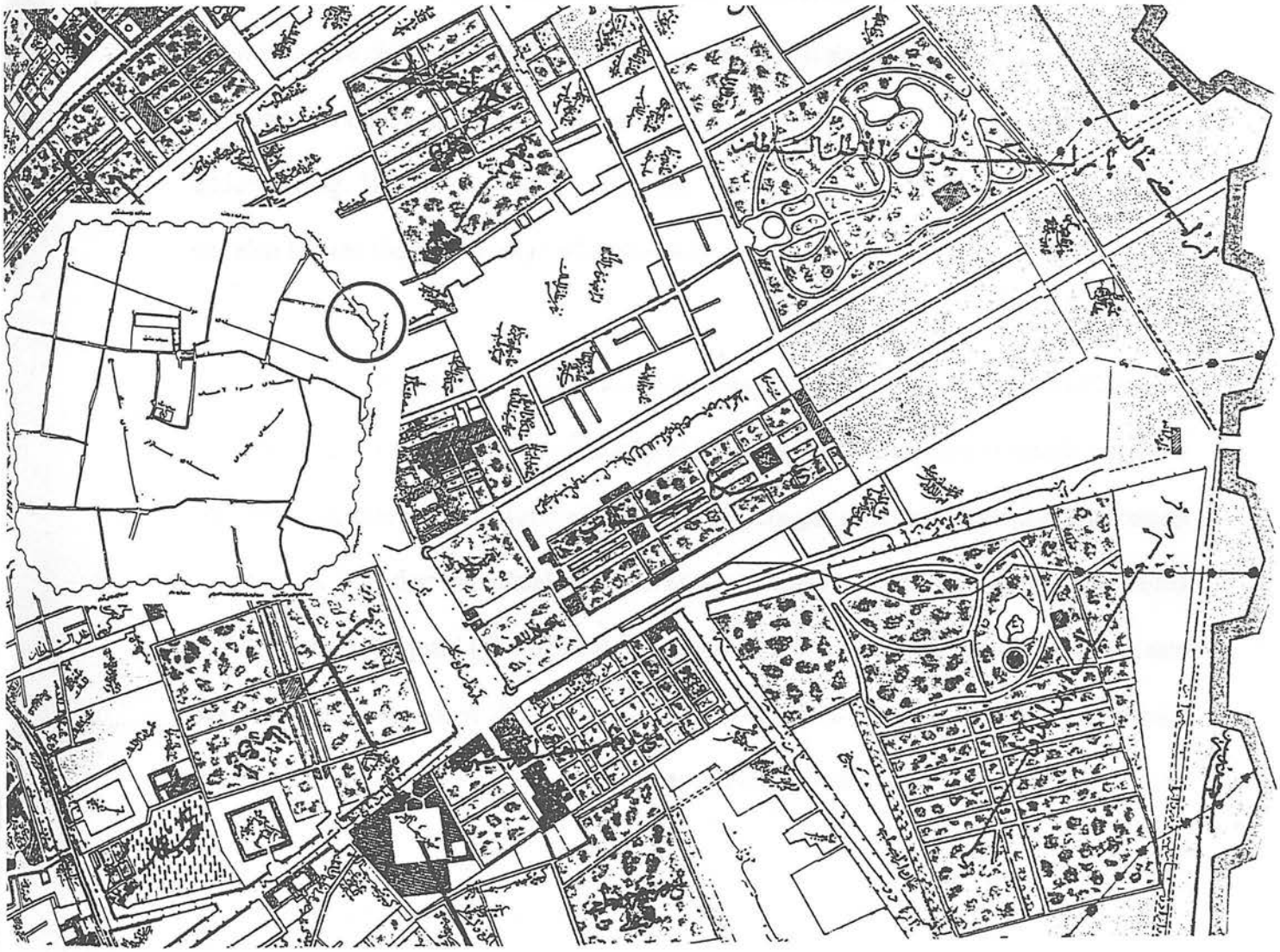
after this development increased from six, in the old wall, to twelve in the new one. Although these gates, compared to the older ones from earlier periods, were not the best architecturally, they had some cultural and historical significance attached to them. Every gate had between four to six minarets with different beautiful tile-works. Although the names of most of the gates are still there, Reza Shah, in 1931, when deciding to expand the town again, ordered their demolition along with the wall itself (Semsar 1987). Jamalzadeh (1921) argued that after destroying the old wall and building the new wall in 1874 Tehran started to become a European town with parks, the railway, automobiles, a telephone system, and even a Grand Hotel (see also Zaadboom Consultant 1994). Jamalzadeh then added that according to Curzon, Britain's ambassador to the Iranian Court, most of the money that the "British Help Foundation for Starvation in Iran" had given to the Iranian government in 1871 was spent on building the new wall and moat, by the Shah.

In this new era Tehran started its take off to become the largest and a considerably different city in the country. With these developments we can see that for the first time the use of Western patterns and Western names, without any adaptation to the local culture, was seen in Tehran. In the map of Tehran which was drawn in 1891 the word 'Parc' (from French) as well as the European pattern of parks can be seen in spaces such as 'Park-e Zell-Al-Sultan', and 'Park-e Amin-Al-Douleh' in north-east of Tehran. Evidently using European patterns, goods, elements, forms and names were rapidly spreading in Tehran (figure 2.8). After Nasir-Al-Din Shah`s reign to the end of the Qajar regime (1925) some of his ideas were followed by other kings but there was no significant change or development in Tehran`s structure.

With the emergence of these new ideas, the cultural inheritance of Iranian architecture which was related to the idealism of lofty paradise was replaced by Western arts and images that

had been imported with the Qajar Kings and the aristocratic families. Lapidus (1991: P.556) has argued that "indigenous elites, institutions, and cultural codes were as important to the shape of modernity as European imperial and economic systems.

Figure (2.8) - European design for green spaces in Tehran as a new concept and new name 'park' during Qajar time (Transitional Development Period)



Sourece: Iranian Army Geographical Organisation (1991); Tavassoli (1992)

The impact of Europe on Moslem societies is mediated by the collaboration or resistance of local elites. Thus the transformations that take place in Moslem societies are forged in terms

of the interests, perceptions, and responses of internal elites to the pressures and incentives generated by European powers and by their desire to exploit European influences in the struggle for power within their own societies."

As a result the particular symbolic 'imagination world' of the Iranian artists and architects changed direction towards that of the materialistic Western world. With the introduction of new materials as well as new patterns, in line with the industrial revolution in Europe, Iranian town structure changed dramatically (Saremi 1991). But there was a problem in that what was understood by the Iranian authorities of European culture was only a superficial understanding. This not only prevented Iranians from developing their own built environment but also has led them to damage what they already had (Hashemi 1992).

One of the most important events in the transition period was sending students to Europe to study architecture. This was the first step in discarding local architecture which happened later on. It also led architectural education to be brought under the control of the central government. The first individual who was sent to Europe to study architecture was Mirza Mahdi Khan-e Shaqaaqi (1844-1920). He accompanied the first group of Iranian students who were sent to France in 1857 by direct order of Nasir-Al-Din Shah. Shaqaaqi came back to Iran in 1864 after he received an architecture qualification from the Ecole des Beaux Arts, Paris. The Feerooz-e palace in the eastern side of Tehran was the first important building he designed for the Shah and was completed in the 1870s. Since then there has been a continual flow of students sent to Europe to study science, arts and architecture. The increased emphasis on a university or school training in architecture had the effect of diminishing traditional building approaches and training/learning was given only to 'school men' rather than to the traditionally educated 'builders'. This process reached a new dimension when in

Reza Shah`s period the Faculty of Fine Arts in The University of Tehran was established.

Seeing the West as a model for the future gradually spread from the Qajar Palaces to the town itself in the form of some governmental buildings. But this idea was not generally accepted by the society until the time of Reza Shah when these ideas started to be imposed on society by force (e.g. see Saremi 1991).

Saremi also argues that one of the main characteristics of Iranian architecture is that it has the capacity to develop within itself in different and new ways. In this sense Hasht Behesht Palace, and Sheikh Lotfulla Mosque in Isfehan, for instance, are the essences of the natural continuation of what the Iranians had done in their ancient houses and temples thousand of years before. This ability and characteristic for indigenous growth in this period began to be ignored and this was one of the most fundamental causes of damage to both the Iranian culture and the development processes in this country. Because what was imported and imposed by the centralist governments had no opportunity to be adapted and matched with the local culture. Nevertheless, at this time in histroy, Tehran had still saved its traditional character. William Jackson, when he visited Tehran in 1903, argued that the city is a combination of Western and Eastern civilisations in which the Eastern aspects have superiority. He also described the Iranian Royal Bank, Bank-e Shaahii, as of mixed Iranian and European architectural style (Semsar 1987). This combination continued but, over about seventy years, the superiority gradually changed in favour of Western civilisation (Seger quoted by Sarkhosh 1992).

Figures (2.9) - Some of the most identified buildings during Transitional Period (Qajars)

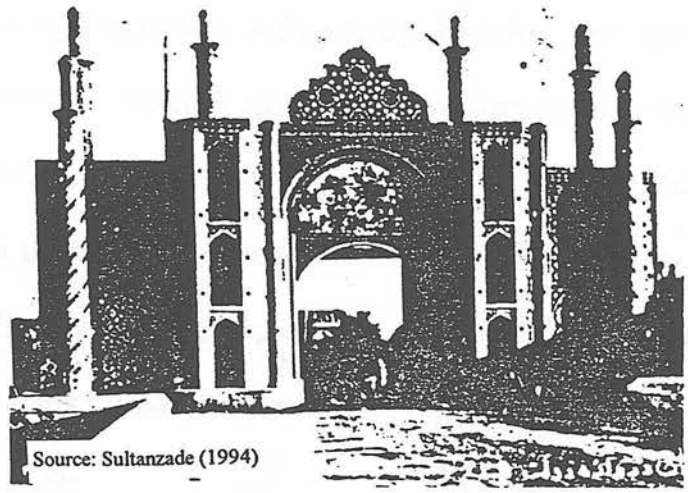
Figure(1)-Doulat Gate

Figure(2)-Shams-Al-Emareh Palace

Figure(3)-Hsanabaad Square Façade

Figure(4)-Dar-Al-Fonoon College

Figure(5)-Sepahsalaar Mosque and College

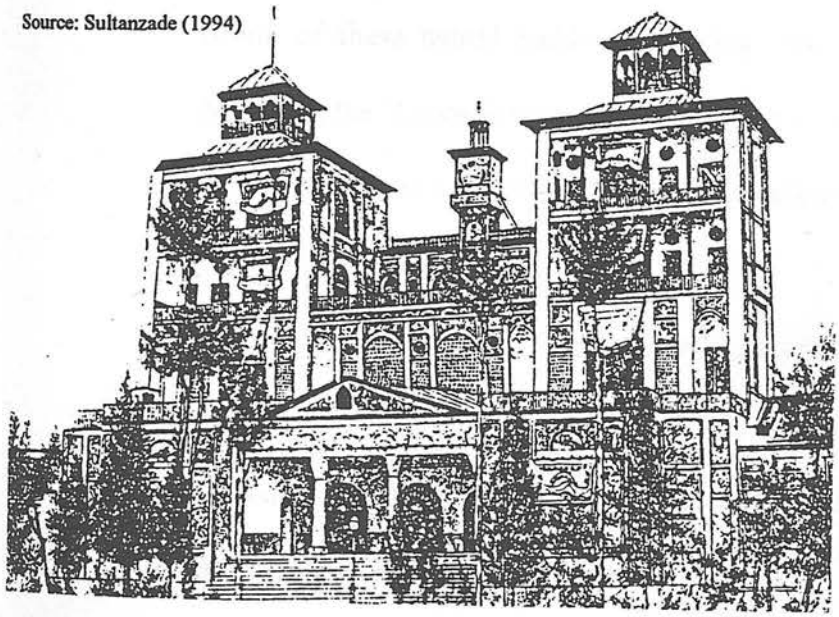


Source: Sultanzade (1994)

(1)

(2)

Source: Sultanzade (1994)



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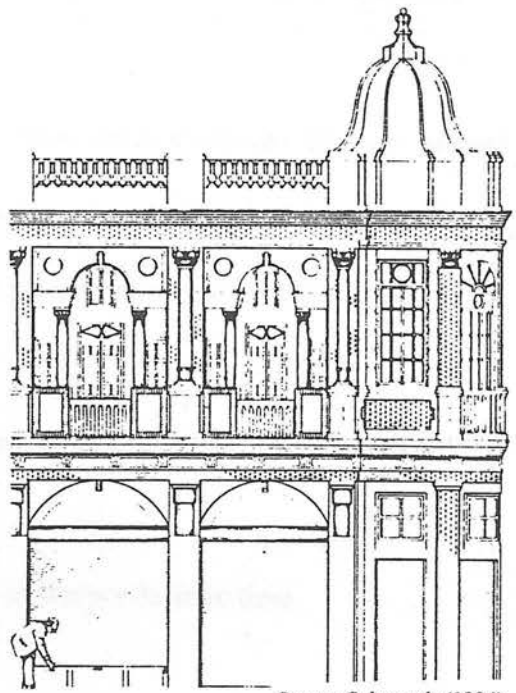
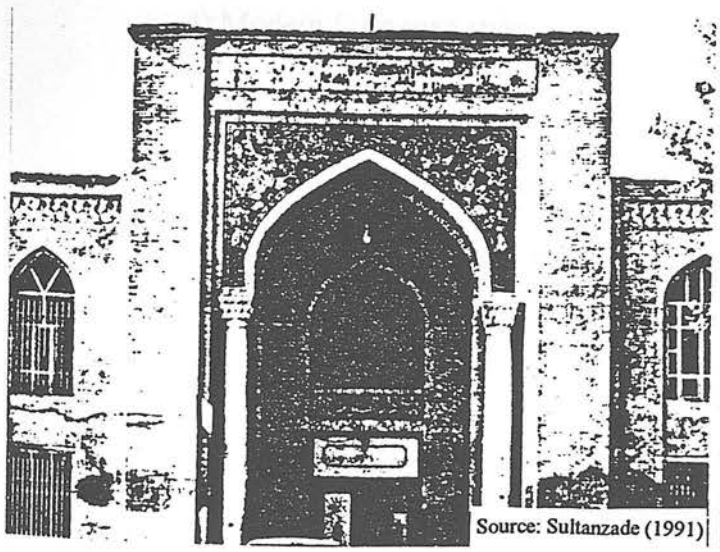
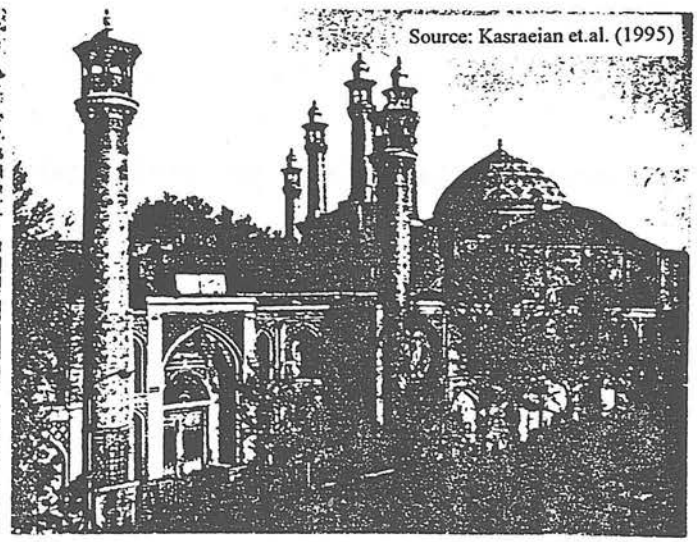


Source: Sultanzade (1994)



Source: Sultanzade (1991)

(4)



Source: Kasraeian et.al. (1995)

(5)

At the beginning of the process of the modernisation programmes the idea was to use Western science and technology to develop local talents and resources. However, very soon this idea was replaced by the substitution of vernacular ideas with the Western patterns and styles. During the Pahlavi regime first there was in existence a so called modern national architecture. This was introduced at the time of the foundation of the Pahlavi regime by combining pre-Islamic patterns with European, for instance. This movement was reinforced with the cooperation of European and Iranian architects (Saremi 1991). The result was some architectural works in Tehran in the 1930s.

Some of these hybrid buildings showing these characteristics are the 'Iranian Ancient Museum', the 'Anooshiravan-e Daadgar School', and the 'Iranian National Bank', in Tehran (figure 2-10). Habibi (1990) recognised four different architectural styles in the period of the Reza Shah reign:

1) Vernacular architecture from the early Qajars time that was used in housing by the middle class.

2) National architecture which was mostly related to the pre-Islamic time.

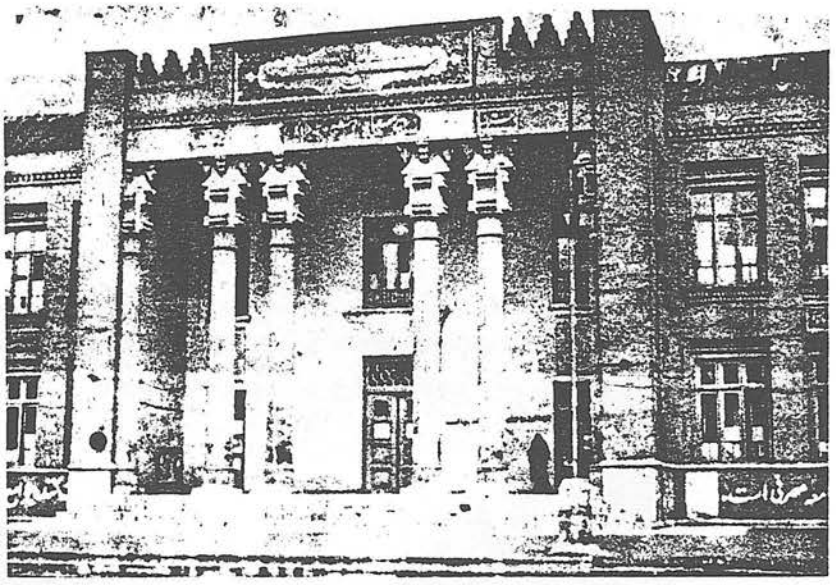
3) European classical architecture;

4) Modern European style.

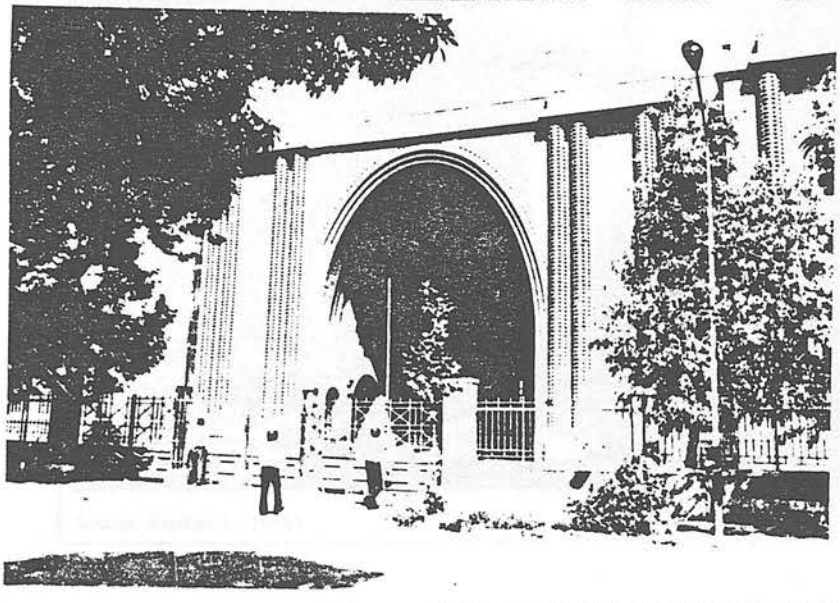
The last three styles were used only in government buildings (for more details about the most important buildings in this period, i.e. see Sultanzade 1991; Zaadboom Consultant 1994).

Figure (2.10) - Some Representative Buildings during Pahlavi I (Transitional period) Indicating Combined Architecture.

Anooshirvan-e Daadgar School



Source: Saremi (1991)



Iranian Ancient Museum

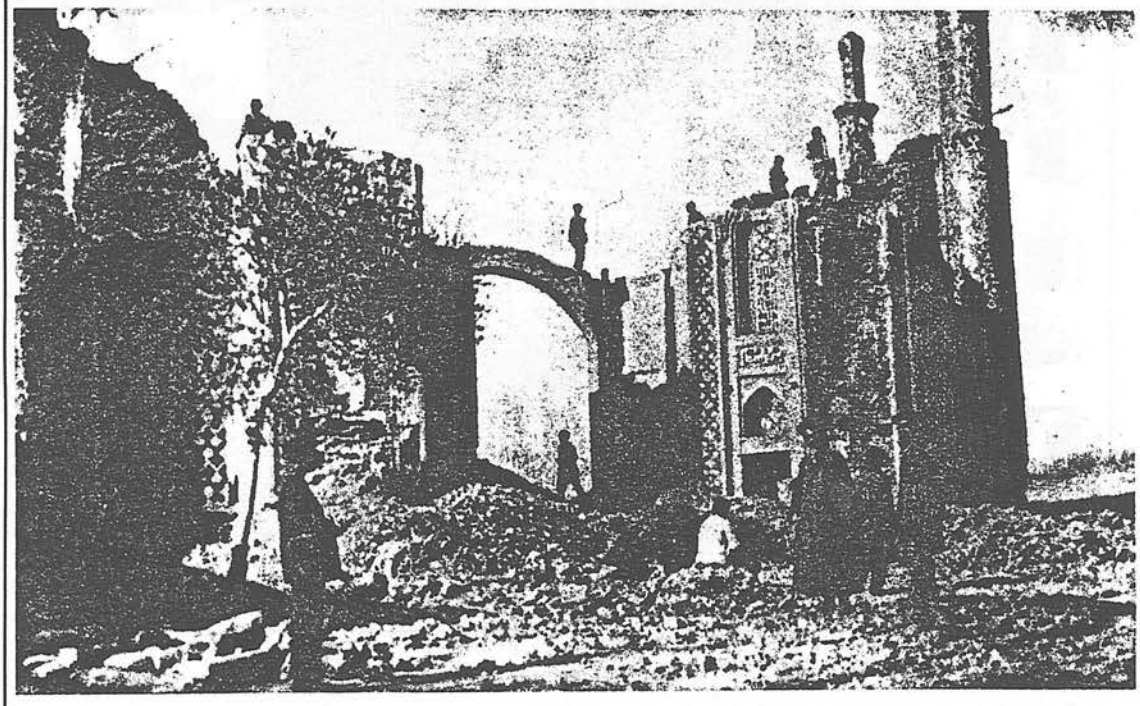
Source: Saremi (1991)

University of Tehran, Faculty of Fine Arts

Source: Barati (1988)

There were also operations in city scale. During 1933-1938 Reza Shah, continuing with the modernisation programmes for Iran which were based on an 'anti-local cultural' ideology, decided to demolish Tehran`s walls and change them into the new wide streets.At the same time he ordered new wide streets inside the existing texture, the consequence of which was that different parts of the city became disconnected (Lockhart quoted by Amirahmadi 1990).

Figure (2.11) - Part of destruction over the traditional part of Tehran (the Doulat Gate) in Pahlavi I reign

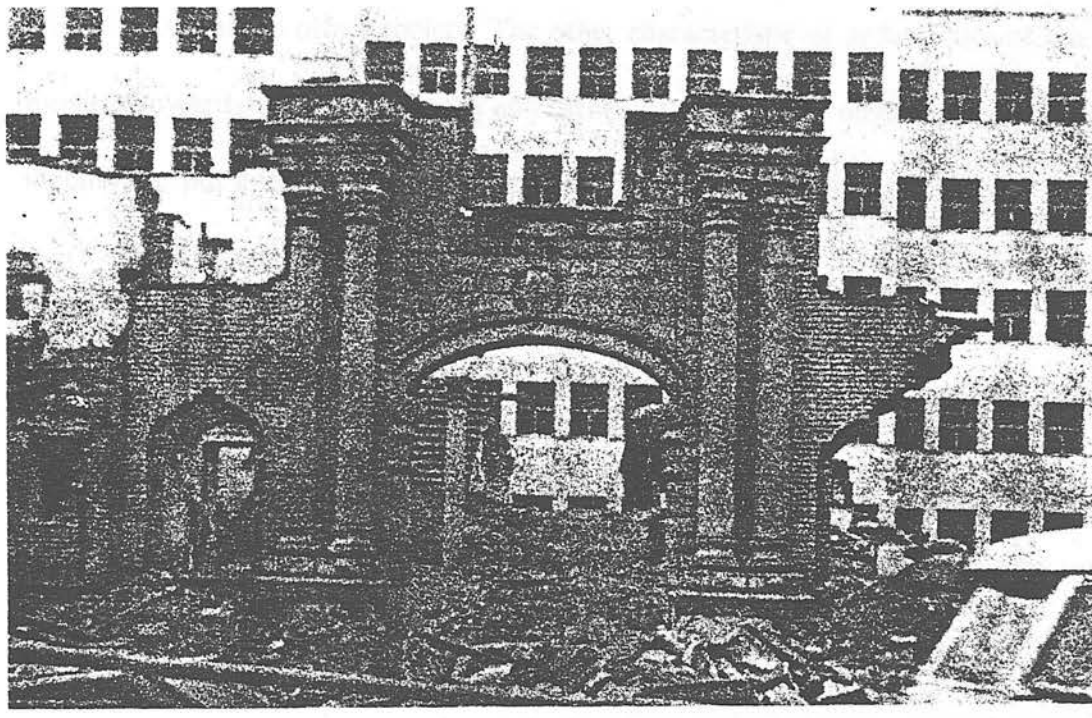


Source: Kooban S. (1991)

In 1938 a plan for Tehran`s development was prepared using foreign consultants (Habibi 1990; figure 2.13) which was influenced by the architectural styles in Europe. The significant principle of this plan was zoning and the checkered pattern of accessibility networks by which the unity of the existing texture was destroyed. According to this plan some important buildings in Ark, the citadel, and one quarter, Sangalaj, were completely demolished and some new government buildings such as the palace of Administration of Justice and Finance Ministry, were built (figure 2.12). This kind of development continued through the north of

the town and some other buildings such as the Post Office Head Quarters, Police Head Quarters, and the Ministry of Foreign Affairs, were built (Habibi 1990).

Figure (2.12) - Demolishing the Finance Ministry traditional building and its modern style replacement during Pahlavi I reign (Transitional Development Period)



Source: Kooban S. (1991)

With the major changes of the 1930s the historic part of Tehran was totally disregarded, and the old fabric was torn apart. A new network of streets was imposed on it. In the wide streets new façades had to be built wherever possible to hide whatever remained from the old fabric. This was severe damage to the urban fabric identity. The long term trend was to eliminate the vernacular to be replaced with a modern fabric with a minimal relationship to whatever it was succeeding. The framework set by this cry for modernity provided the basis for the future development of the city. Indeed, the sheer size of the post-war development of the urban fabric applied the principle of minimal relationship with the past which reduced, and virtually nullified, the impact of the old fabric on developments. In the end, the pre-1868

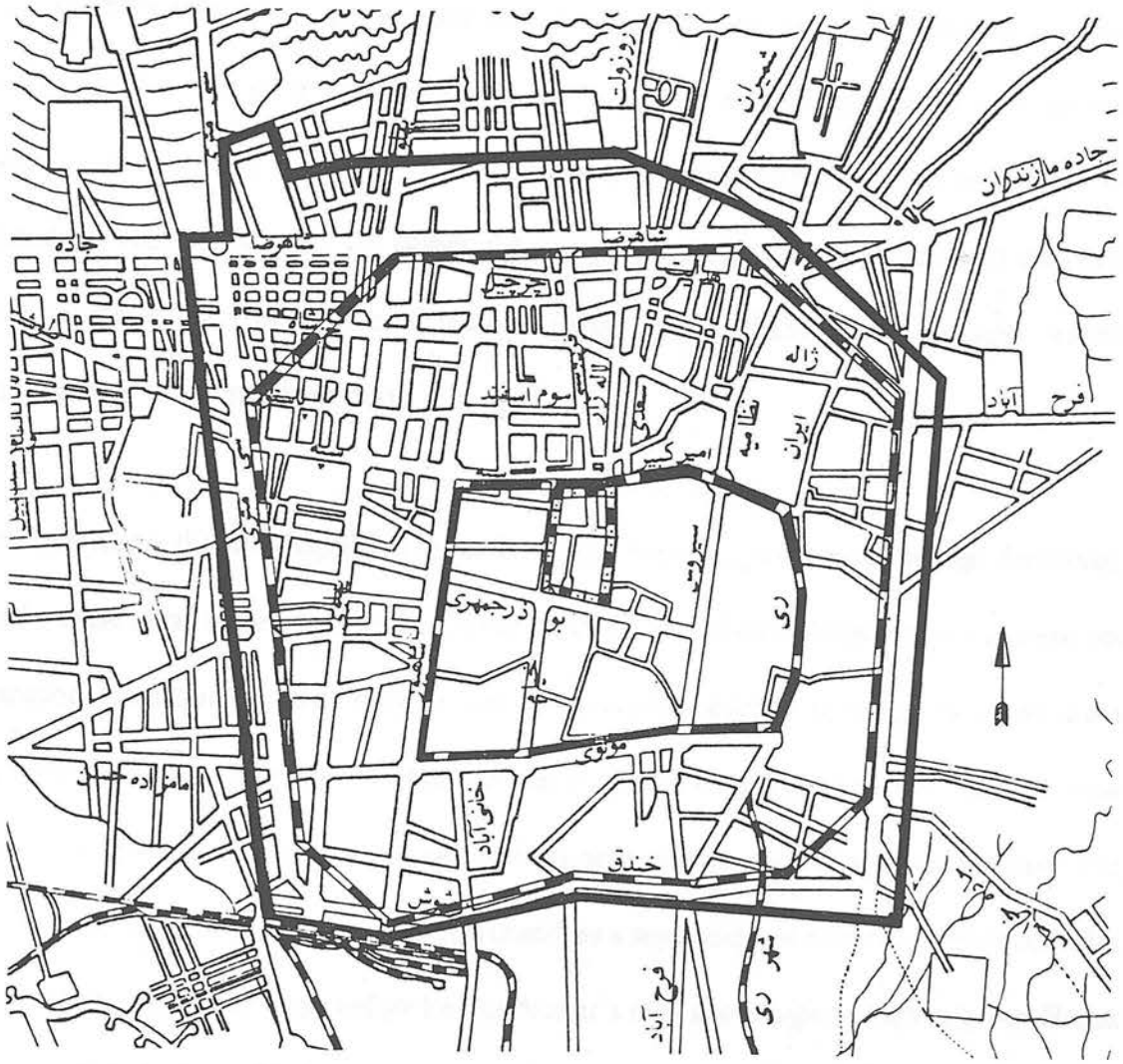
Tehran forms only less than 0.7 percent of the present day urban area (see Madanipour 1989).

Habibi (1990) argues that after the 1930s what happened was an introduction of a copy of the architecture of the industrial countries in Europe and its associated urban patterns to a non-industrialised urban society. The other characteristic of architecture of this period moving towards the present is the emergence of such a built environment which has no identity, or, put differently, it has an international identity found all over the world.

Pursuing this policy, during Reza Shah's time, the vernacular buildings and urban texture in Tehran were demolished or ignored. Also many traditional buildings and parts of the urban fabrics have been destroyed to extend the influence of this ideology. To build intersecting wide-straight roads cutting across almost all the vernacular or traditional urban fabric through out Iran is the other significant decision based on the new ideology and its related policies.

Indeed all these wide streets symbolically were named either 'Pahlavi', or, 'Shah'. The historical evolution of street patterns, land use patterns and building forms, which the quarters represented, is replaced by radical change. This change started from a traditional form being transformed into a transitional or a modern pattern, before new trends emerged. The process of change in the street patterns is characterised by the gradual dominance of an orthogonal geometry and demand for the creation of transportation networks to ease mobility and accessibility (Madanipour 1987). On the other hand, almost all the historical gardens in and around the traditional parts of Tehran were destroyed for physical developments. The only public green space, park, for these areas was built later where one of the traditional quarters of Tehran, Sangalaj, used to be (Safamanesh 1993).

Figure (2.13) - Different Stages of Urban Development During Transitional Period up to 1940s



Source: Habibi (1990)

The building forms also changed from the inward looking courtyard housing to 'extroverted' buildings such as detached houses, terraces, and medium and high rise apartments which have to be facilitated with new access systems (Madanipour 1989).

Habibi (1994b), referring to this period, argues that the dualism in terms of ideological ideas created a 'dualistic' society. This dualism rapidly transformed into the built environment and

therefore the holistic concept and structure of both society and built environment collapsed. This dualism shows how government and its ideology were set against people and their culture and because there was no right for the people to express themselves or to protest against anything, the state was the apparent winner of this struggle. The result was the demolition and ruin of traditional fabrics, the emergence of a very diverse texture in the north and the destruction of traditional textures in the centre of the city and a poor quality environment in the southern parts.

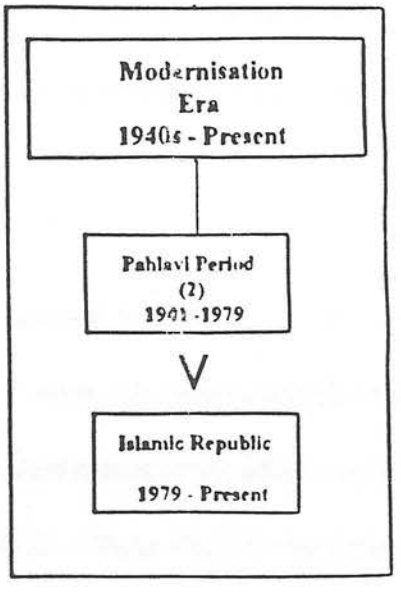
One may argue that this happened in the European countries themselves as well. However, firstly, these ideas were based on European scientific and philosophical views, i.e. were not imposed from outside. Secondly, it was necessary for Europe to adapt its urban areas alongside its rapid industrial development that was not the case in Iran at all. Thirdly, what was developing in Europe was rooted in European culture and life style in the past. For example the concept and the word of 'apartment', as a separated and almost independent units from the others, existed years before Le Courbusier`s idea about high towers (e.g. see Barati et. al. 1997). In Reza Shah`s time, a new part added to the northern part of Tehran which included several government buildings, wide streets, large squares, and many houses for the upper class or high bourgeoisie. All these constructs were based on European styles. Consequently, the separation of the social classes was highlighted and physically structured by these developments.

For example, the north part of Tehran`s physical texture, which was the residence of the possessors of politico-economic power, was facilitated with modern equipment, became detached from the central and southern traditional parts of the town in which vast majority of people were living in relatively poor conditions. The continuation of such conditions led

to some considerable migrations of the rich from the old town to the north. These were the very people who traditionally used to be sponsors of conservation and improvement activities in the old city. This situation deteriorated when several factories were built in the south, east, and west of Tehran between the late 1950s and 1960s, and the empty residences in the traditional city fabric were occupied by the large numbers of migrants from all over the country, particularly the rural areas, seeking better opportunities in the centre.

2.3.3. The Period of Modernisation (1940s-Present)

2.3.3.1. The Political and Socio-Economic Situation During Modernisation (1940s-Present)



The political, social, and economic situation of the Modernisation period divides into two parts: the Pahlavi reign followed by the Islamic Republic. The first includes 1940s to 1979 within which the second Pahlavi was ruling the country. The second represents the period which starts from 1979, when the Islamic Republic of Iran replaced the Pahlavi dynasty, to the present time.

A1. The Political Situation During the Pahlavi Period (1941-1979)

In this period the idea of proximity to westernisation became even stronger following American interest and its influence on the Pahlavi regime. The export of oil became very

important both for Iran and the industrial countries. Amirahmadi (1990) argues that by the mid of 1900s and after fundamental changes in the political situation in Iran compounded by direct interventions from outside, many aspects of such as the economic system, political structures, the basis of social power, and the administration conditions were changed dramatically.

Britain and Russia, in 1941, seized control of Iran and forced the Shah to resign and to make his young son, Muhammad Reza Pahlavi, the nominal suzerain of the country. Between 1941 and 1953, Iran passed through a period of open political struggle among its several would-be foreign protectors and its several internal political parties. The United States gradually replaced both the Russian and the British influence and emerged as the principle patron of the postwar Iranian regime (Lapidus 1991).

The reasons for such a closeness to the West by Mohammed Reza Shah, the second Pahlavi king, lie in two key political events that took place in 1940s and 1960s through which some basic political changes happened and which led to the acceleration of the adoption of Western style modernisation. The first event was the dismissal of Reza Shah by the Allies in 1941 who accused him of having a close relationship with Nazi Germany, and the succession of his son, Mohammed Reza. The second political event took place in 1951 when Iran's prime minister, Mohammed Mosaddeq, the leader of the National Front Party, supported by a coalition of different influential groups pushed a bill through parliament to nationalise the oil company. A bitter three-year struggle followed in which the United States refused to support Iran. The Western powers boycotted Iranian oil and as a result, the Iranian economy collapsed and the Mosaddeq coalition broke up. In the ensuing struggle for power the C.I.A. helped the army and the Shah to seize power, dismiss Mosaddeq, and reestablish an

authoritarian regime. The coup also put an end to the period of an open struggle for political power and restored a centralised and authoritarian regime based on foreign support and committed to economic and social modernisation. The restored regime of Muhammad Reza Shah was technically a constitutional monarchy, but the Shah ruled with virtually absolute powers (ref. see Robinson 1989; Lapidus 1991; Dehesh 1994). After the coup against Musaddeq his "policies of dependence were reversed: other companies joined the Anglo-Iranian Oil Company, now renamed British Petroleum, in exploiting Iran's riches, and treaties were made with Iraq, Turkey, Pakistan, and Britain for common defense against the Soviet Union. Iran was aligned to the West even more firmly than before." (Robinson 1989 P.195; also see Dehesh 1994).

These events and the dependency of the regime on the West demolished any hope to modernise Iran in a natural and independent way. One of the basic reasons for this was that the new global economic structure, geo-political importance, the vast oil and gas resources, and Iran`s potential in terms of marketing, provided strong reasons for the Western powers to intervene in the political affairs of the country over a long time (e.g. see Ashraf 1981; Arjmandnia 1990).

One of the characteristics of the second Pahlavi period was the sharp increase in income from oil. There was a rise in Iran`s oil income from $817 million in 1969 to $19 billion in 1974 (Amirahmadi 1990). The Shah, controlling all the political and economic decisions in Iran continued the process of westernisation of the country. Many ambitious projects were started without any consideration of the realities in the country, such as the value systems, cultural as well as socio-economic structures and so on. Dehesh (1994: P.411) argues that the Mohammed Reza Shah`s last "Development Plans" (1963-67 & 1968-72) were conceived

on the basis of a structural shift towards industrialisation, urbanisation and Western-style modernisation. This kind of unrealistic and abstract planning could not help the society to move towards real development. The changes introduced by the Shah's regime in that time, made the state in Iran even more centralist.

These changes apparently tore up both the traditional social fabrics as well as the physical structure of the city of Tehran. What these continual conflicts did was to widen the cultural and the ideological gap between the regime and upper class and the main body of society particularly in Tehran. As a result, even the combined Western-Eastern model of environmental development that was introduced in Reza Shah`s time could not exist as a policy for environmental developments any longer and a severe modernism based policy replaced it.

The Shah`s dictatorship and his approach to modernisation programmes were associated with 'deculturation' or cultural cleansing, which finally led to the 1979 Revolution that put a stop to the fifty three-year Pahlavi monarchy. The way modernisation models took place in Iran led to a situation in which after decades of different efforts, there are still mostly superficial signs of the so-called modern civilisation in Iran, particularly in relation to the built environment. The problem was that the regime itself did not even feel the necessity of allowing some kind of mutual interaction and adaptation between the imported ideas and the indigenous cultural traditions and values. It seems that the idea was to force the society to accept imposed ideas by all means. These attitudes damaged all the possible benefits which urban fabrics in Tehran in particular and the built environment in general could have received from an indigenous modernisation approach.

One of the examples which shows the extent to which the second Pahlavi leant on Western countries can be seen in the enactment of 'Capitulation' in 1963 by which all the Americans in Iran were given the 'Judicial Immunity' concession. Such laws were attacked severely by all the opposition specially the clergy and the various Islamic movements and the other parties. As a result the concession was later cancelled. Indeed, after the coup against prime minister Mussadeq, a period of suffocation started. This political period, 1951-79 has been called 'ruling through fear'. From this time all kinds of policy making processes were under the direct control of the king, his family, and his government.

A2. The Socio-Economic Situation During the Pahlavi Period (1941-1979)

The main socio-economic characteristic of this period is the influence of oil revenue on all aspects of life in Iran. Dehesh A. (1994: P.409) argues that the second Pahlavi had "an oil-based and petrol-dollar-led economic planning strategy", and "focused upon quick modernisation via industrialisation and urbanisation, and in doing so tried to emulate the West."

In the new politico-social situation of Mohammed Reza Shah`s reign two new social classes emerged. The first was a new middle class which contained an increasing number of government officials, government technocrats, teachers, students, etc. The second class, represented mostly the industrial workers (Amirahmadi 1990). On the other hand, the new bourgeoisie in Iran which followed the new political and social changes in this period included the aristocrat with the Pahlavis above them. From the nineteenth century, the strong connection of Iran`s economy to international capitalism, had gradually shaped an Iranian bourgeoisie who mostly were living in Tehran (Ashraf 1981; Madanipour 1989; Amirahmadi

1990). The land reform as part of a political and economic movement in 1960 led to an agricultural decline which turned rural populations into urban labourers (e.g. see Bavar in Golany 1983; Dehesh 1994).

The most significant point during the modernisation programmes for the built environment of Iran in Pahlavi period, which has often been ignored by researchers, is that the phenomenon of standardisation of the laws and regulations about houses, materials, transport systems etc, set up the base for centralised decision making system in the country. Simply because for both modernism and political centralism structures can be generalised to such an extent that one idea can be placed over various and even contrasting cultures and societies. Having this shared interest with centralism, modernism could survive in Iran for a much longer time than in Europe itself.

B1. The Political Situation During the Islamic Republic Period (1979 - Present)

On the eleventh of February 1979 the monarchy of Pahlavi along with the monarchy in Iran was overthrown by the people with the leadership of a senior clergy Ayatollah (later Imam) Khomani. The new regime, namely, The Islamic Republic of Iran, seen as having radical policies, was faced with numerous problems, internally as well as externally. Economic problems after the revolution were exacerbated by occupation of parts of the western region of the country by Iraq in the 1980s. In addition there was a political struggle for power among the various parties and eventually a serious decrease in the oil price that made the situation almost intolerable both politically and economically.

As a radical political system which inherited disturbing memories of a severe dictatorship and

Western infiltrating influence on the culture of the country and interventions in its various affairs, the first political reaction was to stand against the West. At the same time there was no possibility for a close relationship with the northern super power and neighbour, the Soviet Union. This is obviously natural due to the contradiction between the Islamic Faith and Marxist ideologies and also due to the past experience with this northern neighbour. It was decided that the best policy is to maintain a balance in the political relations with both the Western and the Communist Countries.

The other significant event after the Revolution was that on the twenty first of September 1980, less than one year after the Revolution, Iran`s western neighbour, Iraq, attacked Iran. The ensuing war lasted eight years during which Iran received valuable support from the communist countries which expressed a desire to start new and closer relations with Iran. During this period radicalism in Iran continued to grow even stronger than in the initial years (i.e. see Bashiriyeh 1984; Motawef 1996). In June 1989 after the acceptance of a UN resolution by Iran, a cease fire between the two countries came into existence. Following the bitter experience of the war and the death of Iran's spiritual Leader, Imam Khomani, a political shift towards more liberalism started. From this time on some effort was made by the government to re-introduce and re-organise a capitalist approach. A new era began in the relationship between Iran and the Western countries. Similarly after the fundamental changes which took place in the ex-Soviet Unions, for the first time after years of communism, some of the emerging new countries established good relations with Iran as well as the state of Russia which now maintains a very good relationship with Iran .

After the Revolution in Iran the immediate action was to cancel almost all the economic activities of western companies there particularly the American ones. These activities were

put under the direct control of the state. Projects which were planned or began during the previous regime were all stopped. In this period the economic situation of Iran started to develop in the direction which prevailed in the socialist countries. This is due to the long period of severe loss of resources both economic and human caused by the imposed war which put strong obstacles against any possibility for social and economic progress in the country. The awareness of these problems prompted the government to announce the "First National Development Plan" which was drawn up and partly implemented. The reason for this was that the oil price, for a rather long time, was kept at the lowest possible level. The "Second National Development Plan" was then introduced whose main aim was the recovery from the war and its legacy and to solve all the problems caused by this war including the reconstruction plans.

B2. The Socio-Economic Situation During the Islamic Republic Period (1979 - Present)

The Islamic Republic of Iran replaced the Pahlavi Dynasty in February 1979. This event followed many changes in the political structure of Iran (i.e. see Bashiriyeh 1984, Motawef 1996). In terms of economy, Iran, after the Revolution, was faced with huge problems which were imposed by the state of war. Shortage of resources, war damages and expenditure, alongside with a rapid population growth all added to a complicated situation and economic difficulties all over the country. The main ideal in socio-economic terms was focused on the reallocation of wealth and income distribution on the basis of the Islamic ideas of egalitarianism and social justice.

During the Iran/Iraq war a state controlled political economy was developed. After the war, economic reform and increased liberalisation in terms of economic activities started to

alleviate the recession in the society in different ways. However, these activities were followed by high inflation. The main characteristic of Iran`s socio-economic condition, therefore, is dependency on oil export, industrialisation, rapid rate of population growth, and rapid urbanisation. Through a steady development of these, inflation is later pinned .

In social terms, after the Revolution, the main structure of the society remained the same as before. The royal family, the close politicians and their relatives, as well as many aristocrats related to the court left the country. Basically a religious republic state replaced the secular monarchy regime. Key posts were held by revolutionary middle class groups and individuals. Meanwhile, a new upper class started to emerge which was related to the traditional traders.

The lack of investment and resources in rural areas together with the rapid growth of the bureaucratic system and centralism compelled the people towards urbanisation and migration to the large cities particularly Tehran. At the same time the removal of some limiting regulations led to a massive emigration from rural areas and the other towns and cities towards Tehran. These rapid events did not allow a stable social structure to appear in Tehran. The three-tier social allocation of the city did not change either. Northern Tehran remains as the most expensive part of the city, and has the lowest population density of all parts of Tehran. Because of some limiting regulations along with high expenses in Tehran, recent figures show that the population growth in Tehran is not increasing at the same rate as it was at the beginning of the Revolution (i.e. see Zaadboom Consultant 1994).

2.3.3.2. Tehran`s Physical Structure During Modernisation (1940s to Present)

Centralist oriented modernism is the most obvious characteristic of changes in the urban fabric of Tehran between the 1940s and the present time. In this period the rapid growth of

the city was based on the massive importation of cars and car manufacture. In the Pahlavi period, a belief that the traditional parts of towns in Iran are symbols of retardation, this meant that urban texture was badly treated, i.e. destroyed completely or ignored, this is why the traditional area of Tehran is the most polluted part of the city now (i.e. see Safamanesh 1993).

Diba (1992) has argued that the replacement of Western architecture instead of the evolution of the indigenous one has two reasons. The first reason is because of the socio-political atmosphere in which all aspects of life in society were directed to having desirous eyes to the West which changed not only the built environment but also the way people think, behave, and even dress. The second reason goes back to the emergence of modernism in the West within which the basic idea was globalisation of that school of thought all over the world no matter what kind of cultural background they have.

The modern movement in urban planning and design in Iran was greatly reinforced from the beginning of the Mohammed Reza Shah's reign (1942-1979). The era of modernisation of the built environment can be divided itself in to two periods: Before and after the Islamic Revolution. The modernisation programmes for Tehran based on international criteria was seriously implemented between 1942-1979. The climax of this movement was the provision of the Tehran master plan in 1969 by a corporation formed out of a group of Iranian and non Iranian modernist architects. The idea was to change Tehran to a western city as the symbol of the new Iranian Great Civilisation, 'Tamaddon-e Bozorg'.

These kinds of ideas led to two basic new phenomena in the environment of Tehran. The first is that built forms were given a modernist appearance relevant to an advanced industrialised

society without there being any real basis for indigenous industrial development. The second is a split in society between those believing in modern European society as the symbol of progress and civilisation and those believing in the past as the symbol of identity and cultural existence (see Habibi 1994b). So for the first time in the history of Iran a dualism appeared which was the expression of the tension between 'modern', meaning new and Western style, and 'traditional' which meant Eastern and outdated, reflected in the urban environment.

One of the most significant influences of political centralism in Tehran can be seen in the way its population has grown. The population of Tehran has been estimated at about 15,000 in the 1780s (Madanipour 1987) according to the first census that was carried out, about one century later, in 1883, Tehran`s population was 106482 (c.f. Zanjani 1990). The last National Censuses result showed that Tehran in 1966 had population of 6,626,024 (Ettela`at No. 668, 1997). The following table shows the number of city dwellers in Tehran between 1883-1986.

Table (2.1) - Tehran`s population from 1883-1996

Year	Population
1883	106,482
1891	160,000
1922	210,000
1932	310,139
1939	540,087
1956	1,512,082
1966	2,719,730
1976	4,530,223
1980	5,443,721
1986	6,042,584
1996	6,626,024

(Zanjani 1990), National Censuses from 1956-66

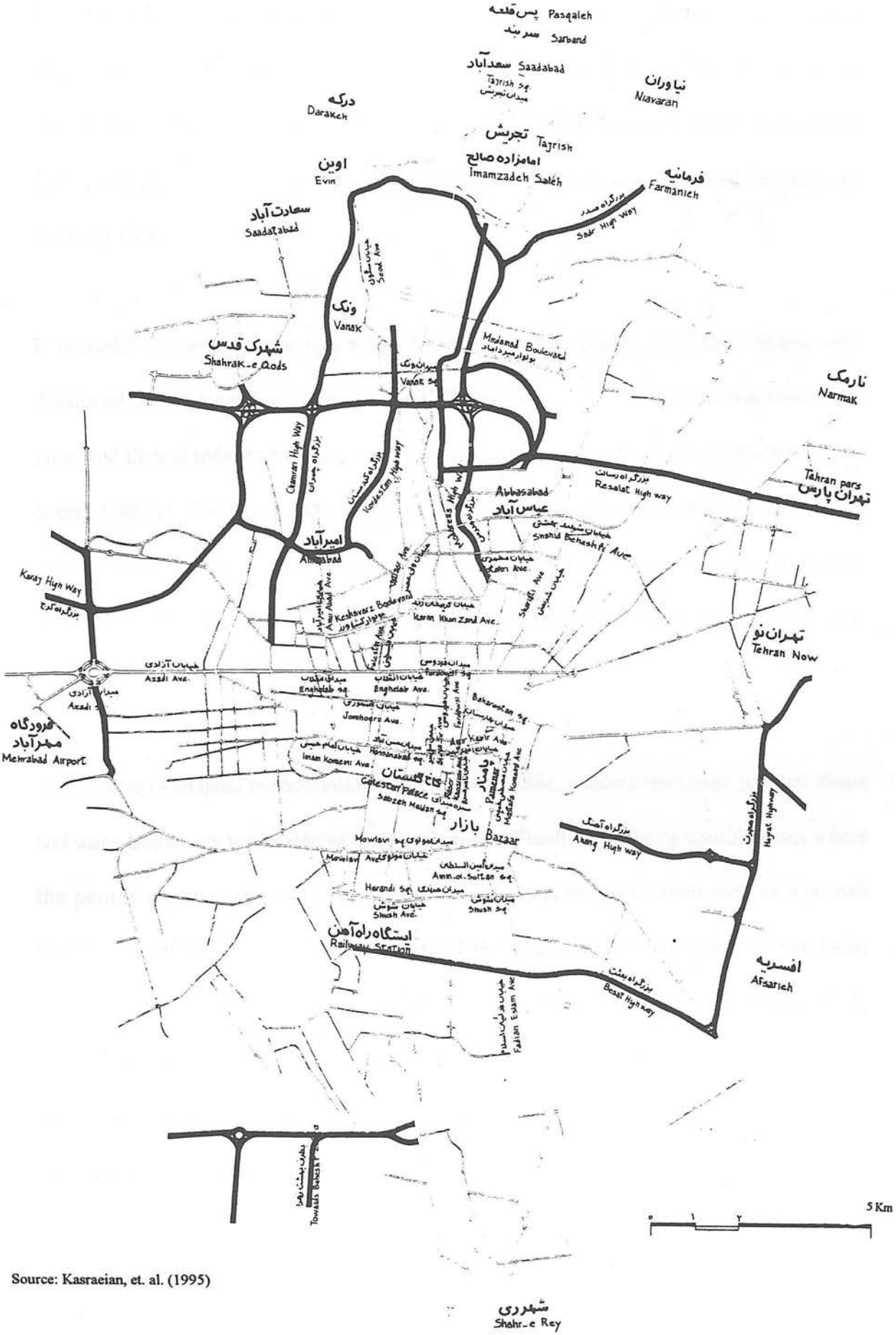
As a result of centralism, a considerable part of the industrial, financial, trading, and political activities started to assemble in Tehran. In 1951, for example 38% of the industrial activities in Iran were concentrated in Tehran alone (Amirahmadi 1990). Indeed, in the twenty years between 1967-1987, Tehran`s population growth rate has increased 200%. In other words, population in Tehran in this period increased on average 6.5% each year (Zaadboom Consultant 1994). The last census result, however, shows that the rate of the population increase in Tehran during the last decade has reduced to 0.9% each year on average. In spite of this, 25% of all urban dwellers in the country live in the province of Tehran (the result of 1996 National Census in Iran-Ettela`at1997). In this period Tehran has undergone very rapid growth expanding from all sides particularly to the west where there were fewer natural limitations (figure 2.14). In the early 1960s almost half of Tehran`s population were emigrants. At this time 38% of the industry was concentrated in Tehran.

2.3.3.3. Characteristics of Urban Development in Tehran in Modernisation Period

There are many environmental and architectural examples which show the transition from the cultural richness of traditional Iranian spaces to the non identifiable semantic flatness of international types. Tehran not only was kept aloof from its own traditional form but also it has always been different from other Iranian cities. Mohammedzadeh Mehr (1991) added that Tehran, being the capital city, became different from the other Iranian urban areas because of closer and more direct relations with European and American cities than with towns and cities inside Iran.

Master plans are another effect of Modernism, because predicting the scale of socio-economic changes and providing a plan taking into account all physical developments for the future (10 - 25 years) is not possible without resorting to usually unrealistic predictions.

Figure (2.14). Tehran`s continued expansion



Source: Kasraeian, et. al. (1995)

This, naturally, makes the application of a master plan almost impossible. The Tehran Master Plan, for instance, was revised 40 times between 1969 and 1979 because of new changes which were not predictable. This plan was also revised after the Revolution in 1991 by the Atek Urban Planning Consultant for the Ministry of Urban Planning and Housing (see phase I of the Project of Revision of The Tehran Master Plan - Ministry of Urban Planning and Housing 1990).

It is useful to mention here that all of the Iranian cities, towns, and even villages were developed strictly according to master plans. Safamanesh et. al. (1993) argue that what these plans and their standards have provided therefore are to a certain extent uninformative and boring, textures. The criteria and standards of these master plans are absolutely alien to the nature of the historical and traditional Iranian architecture. These imposed globalised standards [by the central government] have changed the built environment in Iran into a mass depot of stone, cement, and bricks.

The process of adapted modernisation models, meanwhile, affected the urban physical shape and scale. Some new towns started to be designed and built by planning consultancies where the people`s participation is totally ignored. Some detached new towns such as Naarmak (1953), Tehran Pars (1954), Yousef Abaad (1953), Lavizaan (1956), Gisha (1959), Dulat Abaad (1972), Shoosh (1975), Ekbataan (1977), Gharb (1977), and so on were built to fulfill Tehran`s master plan targets. More than thirty two new towns and many tower block clusters can be mentioned here (see Zaadboom Consultant 1994). These clusters reinforced social class division in Tehran.

Figure (2.15) - Ekbataan, a suburban new town in western Tehran

Source: Tehran municipulity publication (1992)

On the other hand, many wide streets, namely boulevards and highways around and inside the city were designed and built to serve northern parts of the city. Central and southern Tehran in spite of having the highest density suffered from poor quality of accessibilities. This was the cause of a kind of psychological split in which ones-'self' and 'local culture' became associated with a negative meaning, i.e. Western became equal with good and perfect whereas Eastern (=Iranian) became equal with bad and deficient. This can be considered as the essence of the people-environment disintegration crisis in Tehran.

Martin Seger (quoted by Sarkhosh 1992), in his geographical research on Tehran between 1969 - 1973, came to the conclusion that the city, from the point of view of physical pattern has a dual polarity. On the one side is tradition, which is represented by the Bazaar and Masjed-e Shah (Great Mosque); and on the other is the modern represented by the

governmental buildings. Seger then added that Westernisation and class differentiation in the recent developments of Tehran were obviously visible.

On the other hand, the centralist government in Iran was worried about the migration of rural settlers to the urban areas, particularly Tehran. The reason is that the presence of these migrants is making the city less of a symbol of a modern developed state, providing a basis instead for the state's difficulties. Therefore, the main target of the Tehran master plan was to act as a legal tool to control the city`s development and manage changes according to the existing secular ideology. The 'severe' tendency to control, which is the nature of centralist states, along with the exclusion of people from the processes of expansion and development of the city have led to the state of deep and considerable disintegration between people and their environment. The state's unrealistic idea was to develop the environment, excluding people and their culture, and then encourage, or in some cases, force the people to adapt themselves to that new revised environment. It was not tenable as an idea simply because the philosophy and the methodology of this kind of development were wrong. People cannot cope and communicate with a built environment which is not understandable. Indeed, people and environmental developments are not two divisible phenomena.

In 1965 when the related acts and regulations were prepared in order to declare the planning process in Iran, people`s opinion about the plans, relatively and to a limited degree, had to be examined and considered. According to these regulations, the final plans should be displayed to the local people and the mayor in the municipality for three days in two stages. This regulation was banned by the authorities when they received several proposals from urban planning and design consultancies in late 1960s. The proposals suggested that neither mayors nor ordinary people are able to contribute to the plan simply because they have no

knowledge and background about the town planning issues (Hashemi 1993). A three day period, indeed, was not enough to assess a plan, particularly for non-professional people who have not been involved with the planning process from the beginning. By cancelling this law the separation of people from their own town and cities grew deeper.

Falamaki (1991) argues that the logic of Tehran decision-makers for their plans and designs is summarised in considering 'function' and 'benefit'. These two principles dominate every decision. Consequently, society, both practically and according to the laws, is banned from contributing to the process not only of decision making but also of management, maintenance, building, and implementation. Rahnamaii (1991) has argued that our cities in Iran now are actually intensive human settlements in which human values are declining and people are becoming passive and irresponsible.

All these environmental changes based on unrealistic political policies led to a deep gap between people and the state. Discrimination between people and the denial of their needs and cultural and religious values, which are well manifested in Tehran`s physical structure, at last set a match to the 1979 uprising. One can argue that it was actually Tehran that overthrew the last monarchy in Iran (Amirahmadi 1990).

After the Revolution, in spite of a lot of urban planning and design activity, the principles of decision making systems and the process of urban development themselves did not change that much. Hashemi (1993), the Deputy of the Ministry of Housing and Urban Planning, argues that both before and after the Islamic Revolution in Iran the main institutions responsible for decision making were dominated by politicians and engineers, 'a group of technocrats who are influential in implementing urban development plans'. Inevitably the

system of decision making about the built environment is almost the same as it was before the revolution. Since the oil income continues to go to the central government it is this institution which generally decides how the revenue must be spent. To organise this, a planning organisation, 'The Organisation of the Planning and Budget' was established in 1950s (i.e. see Motawef 1996). An arrangement made by this organisation and the Ministry of 'Housing and Urban Planning' and the Ministry of 'Interior Affairs', has allowed different types of plan, such as the master plans and guiding plans, to be developed by architecture and town planning consultancies which mostly work in the private sector in Tehran. The master plans and their implementation now determine the pattern of distribution of the oil income between the different regions of Iran. As a result, with the dramatic increase in income from oil, there has been a huge increase in the level of building activity, and a great number of master plans produced. It has become all the more obvious that the people have very little influence on the developments imposed upon them, and in recent years have had less and less opportunity to contribute.

On the other hand, because of the nature of these plans, their implementation was entrusted to professionals, (i.e. architectures, planners, designers, and so forth). These people were supposed to provide the plans and implement them which usually meant reinforcing approved regulations. According to the Ministry of Housing and Urban Planning, 'Values' have been added to the system, whereby consultants are required to consider element of traditional architecture in their designs. This however is still problematic as the values are not derived directly from the people's contributions but are decided upon by the professionals. This has led to a self-contained cycle of policy-making where the government has control over the regulations and processes involved in the master plans, over the consultants and their qualifications, and over the monies involved. The people who are to live in the actual

environment currently have no means by which to influence this process or its results. The whole system of policy-making, the control over the built environment, and the urban planning and design processes can be derived in the following diagram:

Controlling Authorities (State)

v

Consultants' Qualification--------Orders, Guidance & Regulations

v v v

Investment + Professionalism & Technology > Development + **Value**

Source: Hashemi Sayyed Reza ' Deputy of the Ministry of Housing and Urban Planning' (1993)

According to this diagram the system as a whole is the same as it used to be before the Revolution except in the case of 'values'. The 'values' here are those which relate to Islam and the Iranian culture and whose manifestations can clearly be observed in the vernacular architecture. Bringing this factor into the planning and design processes, after the Revolution, could be a reaction against pre-revolution modernism, which is believed to have ignored cultural values.

As the diagram shows planning and design development is centrally controlled by the Ministry in two ways:

1) The introduction of systems to control and monitor the qualifications of the national consultancies and to decide their responsibilities and rank.

2) Enacting the criteria and standards of 'plans' and 'designs through laws and regulations with particular emphasis on Tehran.

Above all design and planning education is controlled by the government and all the related faculties and institutions of architecture, urban design, and urban planning have to follow the same centrally approved curriculum. The reality is that there are only a few changes in the urban and planning development processes after the Revolution (e.g. see Amirahmadi 1990, Falamaki 1991, Diba 1992, Hashemi 1993) because decision making and the implementation process still remain unchanged. In this regard a number of problems can be identified and classified as follows:

1) Central decision making system.

2) Lack of opportunity for people to participate in the development process.

3) The application of global theories, ideas, and solutions which are still imported from a variety of foreign countries.

4) The continuation of the split between socio-cultural environment and the physical planning developments.

After the Revolution all the development projects which were suggested by Tehran`s master plan were cancelled. After some time, however, most of these projects such as Tehran`s underground project, satellite new towns, and highways expansion plans were reintroduced for expediency's sake. Tehran`s highways moved again towards completion. Many townscape projects (known as the urban beautification plan) have been carried out. Investors received permission to build high towers particularly in the northern part of the city to respond to increasing housing demands. There have also been many traffic engineering schemes one of which is the traffic limitation scheme in the central regions of Tehran.

Although the Pahlavi regime has now vanished, many problems and their causes are still alive in Tehran (Amirahmadi 1990). In a recent meeting of Tehran`s mayor with Ayatollah Khameneii, the religious leader of Iran, on 26 August 1996, the municipality of Tehran was criticised for making large foreign [western style] cities, rather than Islamic cities as a model for urban development (see Hamshahri journal - 27 August 1996). Finally, it is possible to say that although after the revolution a basic revision did take place with regard to the Iranian authentic values in architecture, urban design, and urban planning, there are still some basic problems remaining and there is much to be done (e.g. see Diba 1992).

2.4. Contradiction and Dualism in Tehran`s Physical Situation

The cultural centre of the city was transferred during the Modernisation Period from the historical core of the city to the northern part in a gradual process which is continuing to the present time (Safamanesh 1993). It is possible to argue that the unique cultural centre was torn into two opposite parts with no common language between them. This has left an undesirable impact on the people particularly because of lack of urban coherence and united identity for their own city as well as the interruption of cultural and historical continuity. This is not to dispute the necessity for reforms in the built environment to accompany socio-political reforms, however, the manner and means with which it was done has left a huge legacy of damage to the city.

Several senior architects, writers and critics in Iran have come to the conclusion that contemporary architecture adopted in Iran, as a whole or on an individual level, is far from something to be proud of (Hashemi 1992). Such development has acted as a major obstacle to the natural evolution of the existing indigenous environment. Perhaps most relevant here

is the main tenet of the adapted modernisation models, ignorance of historical continuity and disregard for the past. As a result, not only do the main players in Iranian modernisation programmes have no intention of creating any harmony with the existing urban texture but they are set against it, wanting to impose their own logic and order (Safamanesh et. al. 1993).

One of the consequences of the modernisation programmes in Iran is that the main characteristics of the city, especially those related to traditional buildings or features such as 'The Great Jaame', Mosque, the Bazaar, the Citadel, the narrow passages, and the like, have either failed to maintain their role in city life or have totally disappeared. The quarters and their organised structures have disappeared as well. All of these developments have led to a chaotic condition within which the concept of `Shahr`, City, no longer exists to such an extent that Tehran can be described as a fragmented city with no identity and offering no meaning to its inhabitants (Bahrainy 1990).

Now Tehran`s traditional area is itself in a difficult situation. On the one hand, it contains considerable cultural and historical value and, on the other, some of the most complicated and problematic aspects of city life are to be found here because of this cycle of declining facilities and social problems (Safamanesh 1993; also see figure 2.17). Typical problems of this part of the city are pollution (of all kinds), and the running down and lack of facilities and proper services, traffic congestion and so forth. Therefore, the traditional part of the city is simultaneously the most valuable and most problematic region of Tehran.

In the new quarter to the north, the squares are often simply traffic circles which also function as mere visual landmarks in the urban space. None of these squares, dominated as they are by cars, provide a place for pedestrian communication in any significant way. These

are very different from the small openings in the fabric of the old quarters such as Eudlajan, which had worked as meeting points and were sometimes elaborated as places for ceremonial and religious performances called Takyeh (Madanipour 1989).

As has been demonstrated by people's responses in the first chapter, the modernisation of Tehran has caused many cultural and consequently physical problems of dislocation. For example the Eudlajan quarter that was once much desired by rich people, nowadays is not considered even by the middle class. Now the most desirable parts of the city are those that are essentially new as opposed to the old Tehran. These quarters are located in the north such as Vanak Apartments, or detached new towns in Tehran such as the West New Town and so on. Similarly the socio-cultural centres of the city including shopping centres and, consequently, shopping habits are changing. For instance, there has been a move from vernacular shopping centres, such as the Bazaar in the traditional part of the city to the modern malls and superstores of the northern Tehran such as Mohseni square, Vali`asr shopping centre, and Boutique terraces in the Feresht-e street (Safamanesh 1993). There has been a shift in some cultural aspects of the city from identifiably vernacular and indigenous built form to a more international environment (see figures 2.15, 2.17).

The new patterns of streets and buildings in the new quarters were put forward as rivals to, as well as a complement to, the old ones. The break with context has created a split in the typology of physical fabric, and was consistent with the breaks in social structures which were developing also at this time (Madanipour 1989).

Seger (quoted by Sarkhosh 1992) suggested that between the two, modern and traditional textural poles in Tehran, the modern has considerable supremacy over the traditional because

although they have created two almost similar centres for people in terms of importance, the modern centre, mostly serving the upper social class, has gained considerable undoubtable dominance from the point of view of economy. Seger has also predicted that there can be no doubt that, with this type of Westernisation, symbolic dimensions of the oriental life style in Tehran will disappear very soon. This kind of oriental life style, after this, will be found only in those parts of the very poor communities in the city within which the Western life is not possible because of a considerable shortage of income or economic supportive structure.

Another question which relates to the contradiction between vernacular and modern urban textures, is particularly relevant in the case of public services and infrastructures. The services (in Tehran) are classified as both modern and traditional. The former are those services which were introduced through the major social reforms of the twentieth century along Western lines (Madanipour 1989). This has led to the situation in which Tehran`s European style physical development in north and west-north of the historical part, which belongs to upper classes, has acquired different and better conditions (Safamanesh 1993).

Safamanesh (1992) has argued that what disconnects the present Iranian architecture from the past is the loss of architectural continuity which should confirm the past in the present. The modernisation programmes disturbed this confirmation and consequently the continuation of the built forms and of the cultural values. The philosophical basis of the development of the built environmental already lies in contrast to peoples' expectations.

Figure (2.17) - Some examples of Tehran`s tradtional fabric

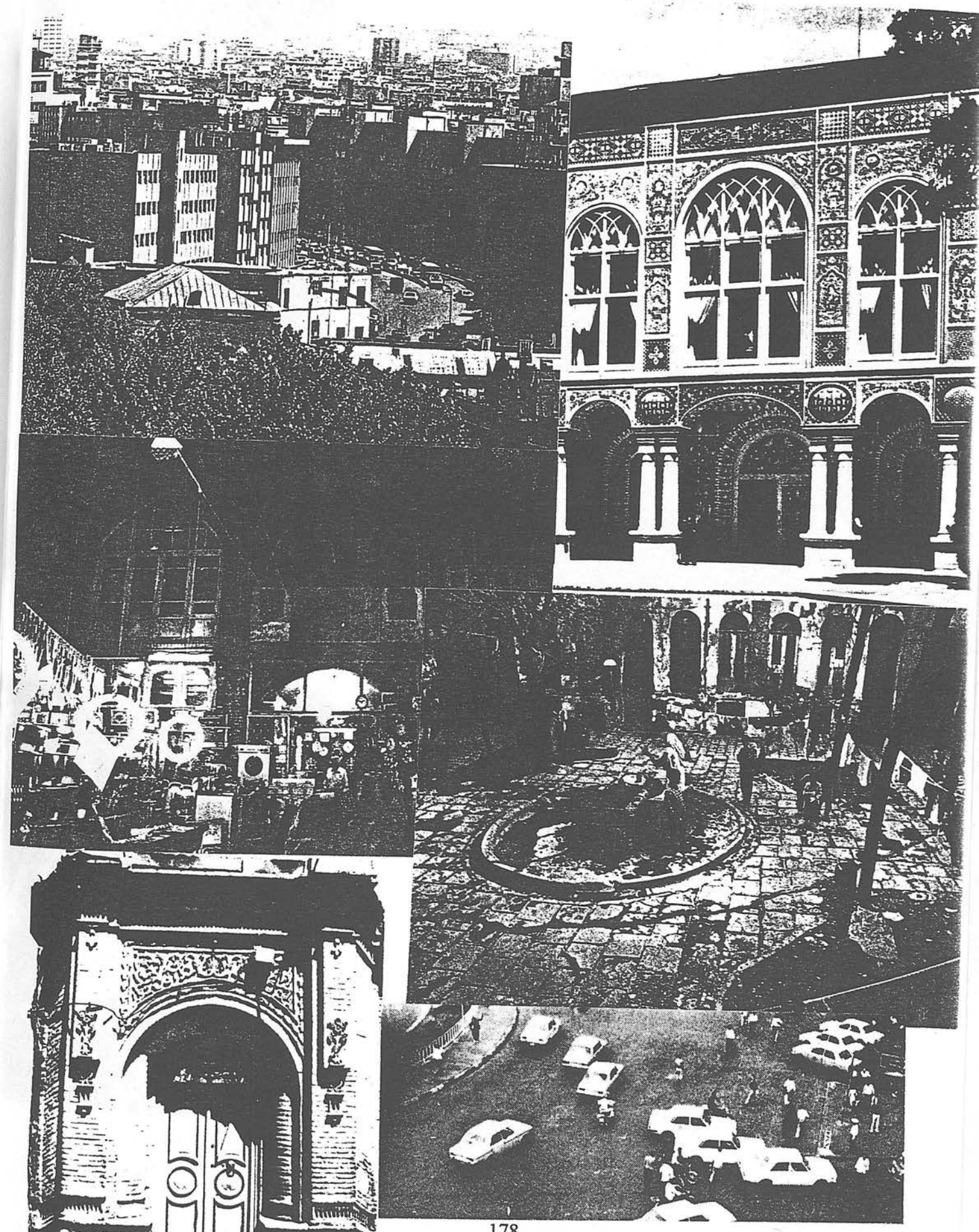
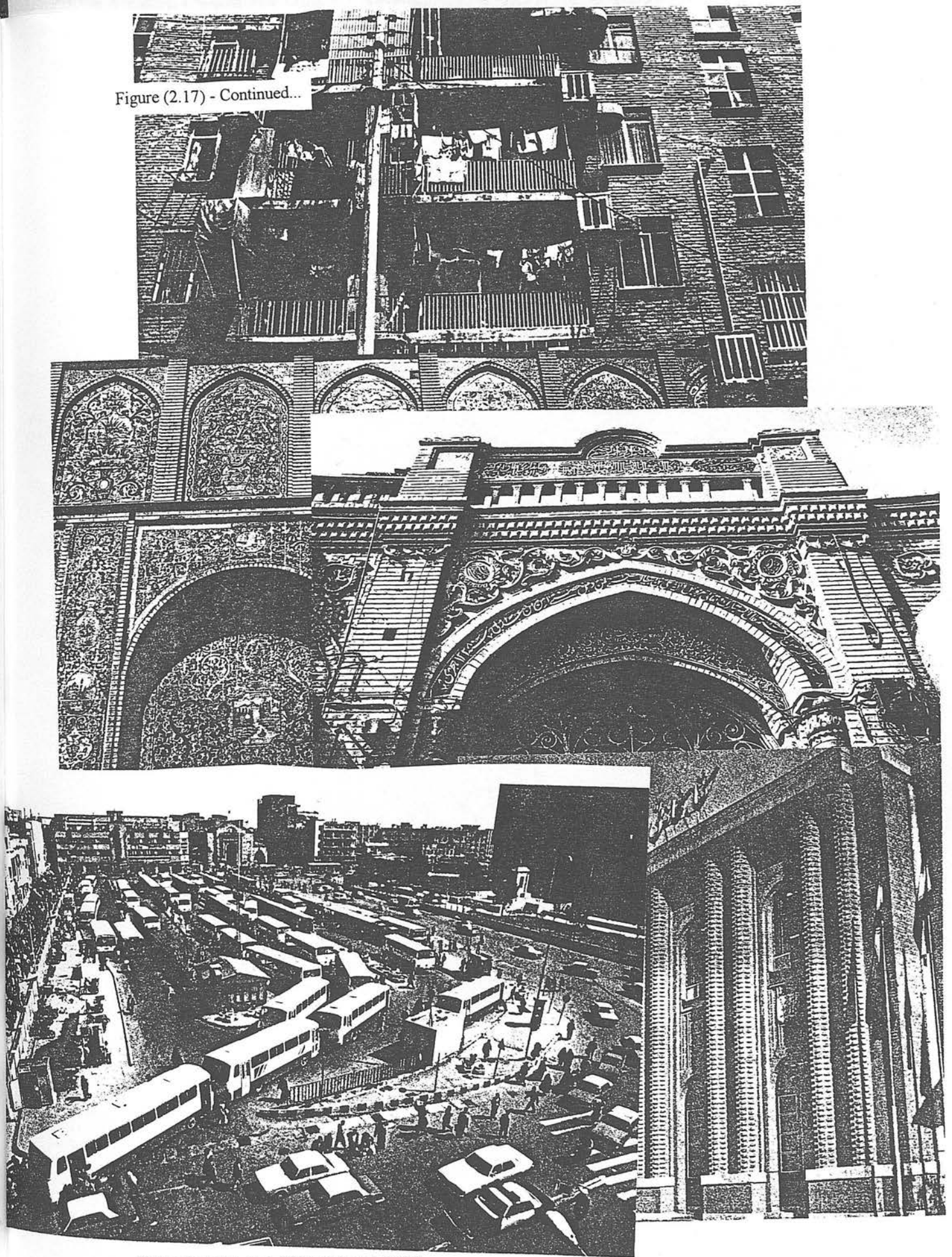


Figure (2.17) - Continued...



Source: Kasraeian, et. al. (1995); Sultanzade (1991)

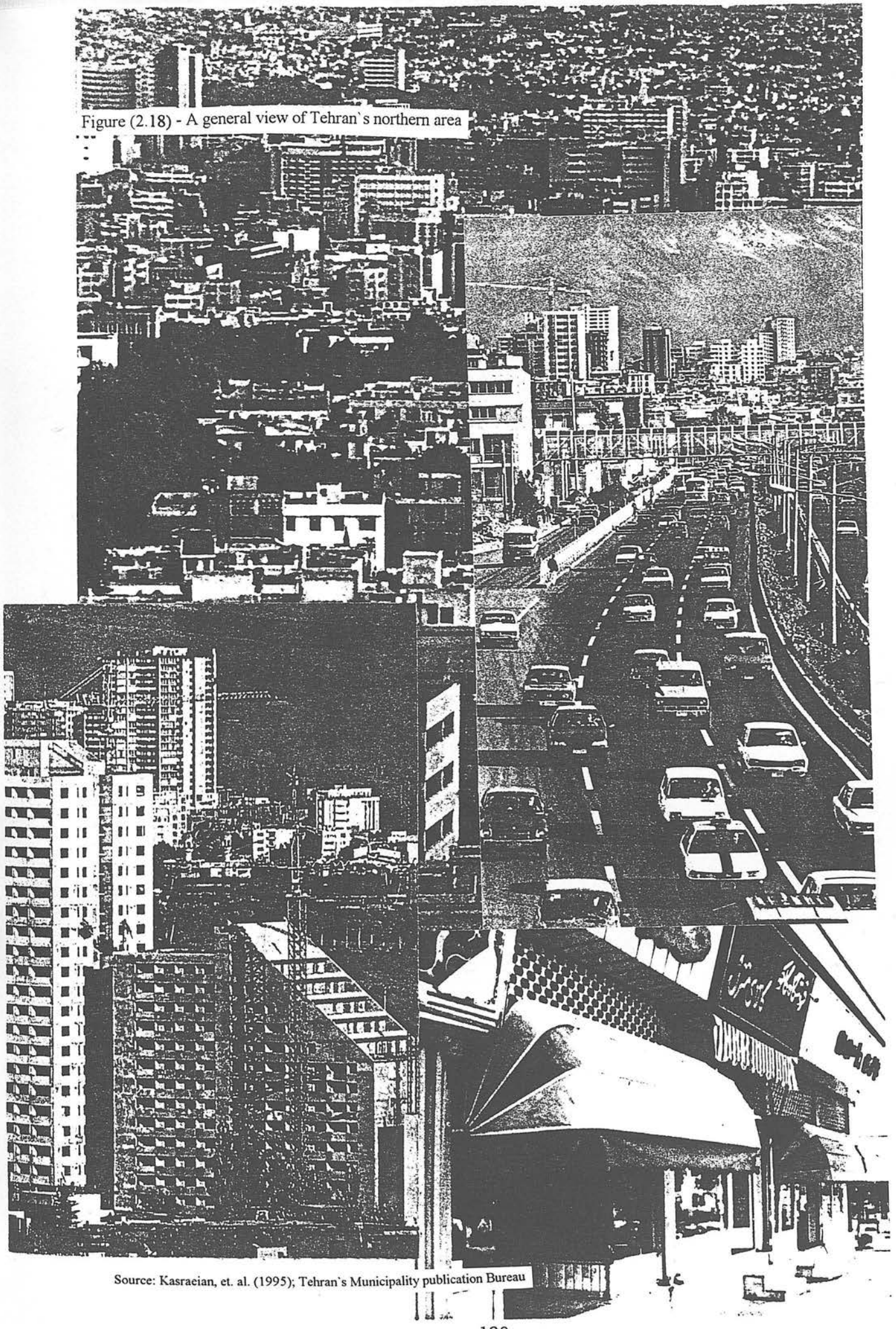


Figure (2.18) - A general view of Tehran`s northern area

Source: Kasraeian, et. al. (1995); Tehran`s Municipality publication Bureau

2.5. Outcomes and Further Discussion

Diba (1992), architect and Reader in The University of Tehran, argues that today it is the idea of almost all the Iranian thinkers in architecture and urban planning that Modernism and modernisation programmes have caused much damage to the built environment in Iran in general and the obvious example for this is Tehran itself.

In the previous chapter evidence of this problem was shown in the inconsistencies people have about the built environment and the dualistic perception which characterises their attitudes to their city in general. This inconsistency is supported by the writings of many scholars. Falamaki, M. (1991) for example argues that the problems of Tehran started from an early stage of its development. The capital city, from the beginning has been faced with two contradictory tendencies:

* The first is the tendency of the various authorities such as municipalities , ministries and others to have a city which brings them pride and which resembles the internationally well known cities or those in the west in particular.

* The second tendency is seen in the attitudes of Tehran's inhabitants who have always tried to conserve, continually, whatever is genuine, humanistic and identifiable with their core traditional values.

These contrasting tendencies are heading in different directions as they represent the split which historically characterised the relationship between people and authority. The result always has been far from the expectations of both authorities and people although resources, time and energy are spent on the city development every year. Consequently, at the moment almost all the problems and limitations of the pre- revolutionary planning systems still exist.

What is important here is that while the historical and political changes in Iran brought different architectural styles, people continued to produce their indigenous environment through which they expressed their cultural traditions and religious values. However this gap which started during the Qajar regime suddenly culminated in the Pahlavi period to the extent it developed into a serious conflict because the new dynasty wanted to impose its dominance and control over the city and its people to far greater extent than their predecessors. The combination of traditional and modern patterns in the city has created a kind of 'strange environment' for its citizens that could inevitably lead to many severe psychological pressures that people currently experience (Habibi 1990).

One can argue that all types of Iranian arts, architecture is where the deepest cultural rupture happened to the extent that it is possible to say that there is hardly any connection between contemporary and traditional Iranian architecture. In fact one could say there is no distinguished Iranian architecture any more. As a result it is possible to say that whereas the built environment is supposed to be the container of cultural and social beliefs, the city of Tehran is far from having this virtue. Today, distinct from the past, the structure and the texture of Tehran lack the precious and distinguished elements needed for a viable and sustained cultural life in a real sense. As a result, as a city, Tehran has lost its coherence and its aptitude for appropriate change.

Part Two

An Holistic Approach for Indigenous Development

Introduction to Part Two

While Part One concentrated on those results from the research which pointed towards the essence of being Iranian, it also highlighted a number of issues which are common to mankind's psychology, behaviour and cultural make up. These, the study argues, are the sources which should shape our design intervention in order to sustain an indigenous development from within the society.

Part Two therefore extends the research into an exploration of the processes used by people in their perception of and relation to their environment, in order to lay the ground for a new indigenous approach to development that is relevant worldwide. It is understood that if the basis of development lies in processes rather than objects and things, the identification of elements of a solution and a new approach will at the same time help to answer Tehran's problems as outlined in Part One, and be globally applicable. The search is for the roots of the problem which lie in the ways of development rather than their objective manifestations.

Part Two begins with a study into Holism which, it is suggested, should provide the basis for this approach as a response to the dualism, inconsistency and fragmentation that emerge from the survey. It then goes on to examine the broader issues of people's perceptions and cultural context with the understanding that these are fundamental subjects to the development of such an approach.

Chapter Three

Holism
A Challenge to Dualism in People-Environment Discourse

3.1. Introduction

I am neither Christian nor Jew,
Nor Magian, nor Moslem.
I am not of the East, nor the West,
not of the land, nor the sea.
I am not from nature`s mine,
nor from the circling stars.
I am neither of earth nor water,
neither of wind nor fire.
I am not of the empyrean,
nor of the dust on this carpet.
I am not of the deep, nor from behind.
I am not of India nor China,
not of Bulgaria, nor Saqin;
I am not of the kingdom of Iraqain,
nor of the land of Khorasan.
I am not of this world nor the next,
not of heaven, nor of purgatory.
My place is the placeless,
my trace is the traceless.
It is not the body nor is it the soul,
for I belong to the soul of my love.
I have put duality away
and seen the two worlds as one.
One I seek, One I know,
One I see, One I call.

(Selected Lyric Poetry of Jalaluddin Rumi (Moulavi) - Translated by Edmund Helminski 1981)

Although this leaning towards 'wholeness', and 'oneness' as presented in the poetry of the great Iranian philosopher poet, Jalaluddin Rumi, is one of the many examples of Iranian literature of this kind one has to bear in mind that these ideas are not just limited to poetry and general literary writings. Seeing the universe as a unique and unified entity is the basis of the Iranian world view.

Even in the built environment this view is presented strongly. Indeed, this is the way of the Eastern world view, in which Iranian culture can be said to have 'philosophised' or subjectified the environment, that is transformed it into symbolic meaning. One of the best examples for this 'philosophising' is seen in the metaphoric meanings of the word '*khan-e*', house, which are equated with the concept of 'world'. In other words, the concept of house and world is one, but how is this achieved? Indeed why? How is it that the world could be house and house could be the world? And how can architecture, urban design, and urban planning respond to this world view when changing the built environment?

The people-environment interrelationship in the past, established in what is known as traditional built environment and architecture, was based on stored information gathered through trial and error interactions between people and their culture, with nature. This process created a holistic relation between people and their surroundings within which mankind itself is an important part. Later, the Renaissance in Europe saw considerable progress in science and engineering and so on, and the idea of the unification and standardisation of all the sciences, including the humanities and social sciences, became one of the driving forces behind intellectual understanding and social development.

As a result these new scientific ideas, methodologies, and techniques entered into hitherto discrete areas such as architecture and urban design. It could be argued that many significant large scale policies and decision making processes within planning and design since the Renaissance have been based on these scientific approaches. This has been the cause of many problems world wide, particularly in those countries which had, historically, established their own unique cultures or ancient civilisations like Iran. These problems are very special because, as will be discussed in this chapter later, the scientific theories themselves have

ignored the indigenous values of the cultures where they were developed i.e. Europe, let alone taken account of the values of other nations which have totally different world views, cultures and environments.

This relationship of classical methodology and indigenous culture is fundamental for any kind of research in the area of built environment within any particular cultural context. To ignore such a crucial issue is to end up with very speculative and perhaps misleading outcome. What is evident in Iran is the result of a severe conflict between imported theories and policies based on these scientific views and the inherited forces of indigenous cultural beliefs and knowledge. In other words, it is possible to describe this as a conflict between the holistic views of the indigenous culture and the atomistic views of scientific theories. One should bear in mind that as Paul Feyerabend (1988: P.166) has mentioned "science is only one of the many instruments people invented to cope with their surroundings."

In the following sections the study will explain in an analytic way the various views that have created conflicts between the holistic values of various cultures generally and the Iranian culture in particular. The aim is to derive a theoretic approach, the interpretation of which could lead to the formation of an indigenous approach, whose applications will be relevant to a general environmental and architectural discourse.

3.2. Atomistic Views in Science and Philosophy

From the start it should be made clear that this analysis is not intended to form an attack against science, scientific theory or scientific developments in the West *per se*. What should

be considered are the effects of an incomplete adoption of ideas and theories which have been imported into a culture that thinks and behaves differently. The developments in science and scientific thought which have continued in the West, especially those towards holism, have not been imported or applied to the same degree in Iran as the atomist and reductionist ideas, for a variety of socio-political reasons.

It could also be argued that the lessons which have been learned in the West from the exploration into reductionist ideas and dualism have not filtered through to the built environment in the West, let alone in Iran which has not had the opportunity to assimilate them to such an extent. This has led to a situation where outmoded and outdated ideas of atomism have had a great and long lasting effect on the built environment.

That the atomistic and Western scientific ideas have led now to holism is a fact to be acknowledged and admired. This thesis does not argue against science, indeed it has made use of scientific method and calls for a combination of Western and Eastern understanding. However it argues that the predominate atomistic and reductionist attitudes that have characterised Western scientific methods until recently have had a damaging impact on the environment of Iran.

Many interventions in the built environment through the modern professions of planning and design, are grounded in Post-Renaissance scientific views and theories. Over a long period of time, indigenous environments have expanded and grown according to particular processes and patterns which ultimately derived from the available resources of their land and cultures, including the skills of local builders and designers as well as materials etc. Both builders and users possessed a knowledge about what kind of characteristics and qualities a house should

have. Indeed, it is possible to say that in any indigenous environment the approach is culturally specific. Standing contrary to this are the many modern schools of thought and approaches which are applied and taught in the architecture and urban design professions, based on these scientific theories and methods that are in conflict with the indigenous cultures and actively aiming to be globally applicable. Strong evidence of this can easily be seen in the context of the so called Third World, as well as within many modern developments found in Western countries. The reason for adopting these scientific methodologies, particularly in the developing countries is that it was thought it is quite valid to ignore or discard whatever could not be explained or quantified in scientific terms. The influence of these thoughts however may well explain the phenomenon of globalisation which is spreading all over the world through industrialisation, modernisation, and the application of the scientific methods. Associated with this, is the reliance of these scientific approaches on generalisation and the tendency towards reductionism and its attempts through atomism to divide things up, and to separate them, so as to reduce the problems to manageable dimensions. The idea of modernism is, largely, the natural consequence of these scientific world views.

As Bertalanffy suggested, while classical scientific approaches have led to plenty of advantages in some fields such as physics and chemistry, they have been problematic in human and environmental fields (Bertalanffy 1971). Classical science in its diverse disciplines, whether they are chemistry, biology, psychology or indeed the social sciences, tried to isolate the elements of the observed universe into chemical compounds and enzymes, cells, elementary sensations, freely competing individuals, etc. Implicit with this approach is the assumption that by putting them together again, conceptually or experimentally, the whole system will exist again, and be intelligible, which, claims Feyerabend, in reality it will not (see Feyerabend 1988). In a similar way, in the Newtonian framework, society was seen as an

aggregate of logically mutually independent human atoms (Mathews 1994).

This ability of people to separate themselves from the environment and to divide and apportion things has ultimately led to a wide range of negative and destructive results such as global environmental pollution and the disintegration of people from their environment. For people lost their awareness of what they were doing and thus extended the process of division beyond the limits within which it works properly. In essence, the process of division is a way of thinking about things that is very convenient and useful mainly in the domain of practical, technical and functional activities. However, when this mode of thought is applied more broadly to people`s notion of themselves and the whole world in which they live (i.e. to the self-world view), then they cease to regard the resulting divisions as merely useful or convenient and begin to see and experience themselves and their world as actually constituted of separately existent fragments. Guided by a fragmentary self-world view, people then act in such a way as to try to break themselves and the world up, so that everything seems to correspond to their way of thinking (Capra 1983; Bohm 1980, 1985, 1993, 1994). **The idea of the whole has been lost in the search for the identity of the parts.**

Hillier (1972-73: P.50) called the first stage in the evolution of classical science "the science of external nature, which reaches its apex in Newton". He then added that this kind of scientific view did not include people themselves, but was the examination of the external world, as something external and unconnected to people. According to Hillier (Ibid: P.40) it was through the classic scientific approach of the seventeenth and eighteenth centuries that rationalism and empiricism expanded. It was at this stage that the paradigms of science began to be applied to the human being itself. Hillier continues: "Science provided a theory of man, to replace religion. Empiricism linked the new cosmography to man. But although man

thereby became an object of interest to science, he was still epistemologically and scientifically separated from the world he studied. He resembled nature, but was still apart from it. This stage may be called the sciences of man".

This scientific progress, in spite of several advantages, led to a serious fragmentation between people and the universe in terms of the theories which were trying to explain reality. Mathews (1994: P.18) has stated that "as Descartes sees it, mind and matter are distinct substances, logically mutually independent: mind can exist in the absence of matter, and matter in the absence of mind". As a result the Cartesian division and the mechanistic world view could be beneficial and detrimental at the same time. They were extremely successful in the development of classical physics and technology, but had many adverse consequences for civilisation. It is fascinating to see that twentieth-century science, which originated in the Cartesian split and in the mechanistic world view, and which indeed only became possible because of such a view, now overcomes this fragmentation and leads back to the idea of unity as was expressed in the early Greek and Eastern philosophies (Capra 1983). From the mechanistic point of view, however, Nature consists of matter, and matter is insensate, dead, drab, unvarying, devoid of interest and purposes. Nature is, from this perspective, ultimately inexplicable: the fabric of the world has been fragmented, atomised, into discrete units, arbitrarily arranged (Mathews 1994).

Hillier (1972-73: P.40) believes that the evolution of the connection between people and nature was introduced emphasising that "knowledge was possible because man, by his nature, imposed certain basic categories on the universe - such as space, time and causality - and that these need not therefore be thought of as intrinsic properties of nature herself."

In spite of all the progress in scientific approaches in the past centuries and the emergence of many theories and doctrines based on it, the main problem in people-environment relationships still remains unsolved. Hillier (1972-73: P.41) has pointed out that "the study of those things that man himself has already made but no longer understands becomes the central vehicle for a unifying perspective on science and society... Since this relation is already pervasively artificial, the scientific study of artifacts from tools to computers, from languages to societies, from mythologies to cities becomes also the proper paradigm for the study of man" and the central question of how people relate to their environment has been forgotten in the detail.

At this point, there will be a brief review of some of the fundamental ideas in classical scientific views and their consequence on the people-environment interrelationship.

3.2.1. Atomism

Atomism was first introduced by the ancient philosophers. Nearer to our own time, it was used in the seventeenth century as a methodological doctrine. Atomism has, and has historically been taken to have, certain social and normative implications (Mathews 1994). Hobbes first used this methodology in political philosophy. When it received tremendous support from Newtonian doctrine, it became one of the great paradigms of atomist reductionism which in the 17th and 18th centuries strongly affected all the sciences such as social theory. Although atomism, as a specific kind of interpretation of the world could help people to overcome some problems, it created many difficulties, also, especially in social and environmental issues.

Atomism caused fragmentation within the environment where it was not initially disintegrated

both in the perceptual and physical sense. Bertalanffy (1971) has suggested that classic Cartesian scientific methodology, in different fields, separated elements into diverse subjects. This is somewhat ironic, given that the original Newtonian attitude had the potential for a greater understanding of interconnectedness and holistic attitude. The consequence of this kind of scientific methodology led directly to a misunderstanding of the process of environmental phenomena. For example, expression of the epistemological examination of the 'external' (ontological) world using the above-mentioned methods can eventually make isolated parts meaningless. We should note this as it is particularly true for the built environment. Different urban spaces, which carry a certain meaning when seen in context, a meaning which is intended, may have the wrong meaning interpreted onto them when they are examined as independent individuals, if indeed they would have any meaning at all (more discussions about the meaning of different elements in the built environment will be presented in Chapter Five).

The consequence of this way of understanding the world initiated the first dualism between subject and object. Capra (1975: P.27) discusses the Cartesian split in order to highlight the loss of the subjective viewpoint and the establishment of a hierarchy that puts the mechanical above the human: "the birth of modern science was preceded and accompanied by a development of philosophical thought which led to an extreme formulation of the spirit/matter dualism. This formulation appeared in the seventeenth century in the philosophy of René Descartes who based his view of nature on a fundamental division into two separate and independent realms; that of mind (*res cogitans*), and that of matter (*res extensa*). The 'Cartesian' division allowed scientists to treat matter as dead and completely separate from themselves, and to see the material world as a multitude of different objects assembled into a huge machine. Such a mechanistic world view was held by Isaac Newton who constructed

his mechanics on its basis and made it the foundation of classical physics. From the second half of the seventeenth to the end of the nineteenth century, the mechanistic Newtonian model of the universe dominated all scientific thought. The atomistic view has continued to affect other subjects such as the humanities as well. Alan Garfinkel (1992) has suggested that "the doctrine of individualism is the doctrine of atomism raised to social theory.

Feyerabend, P. (1988: PP.11-12) argues that a scientific education simplifies 'science' by simplifying its participants. In such a condition, then he adds, "a person's religion, or his metaphysics, or his sense of humour must not have the slightest connection with his scientific activity. His imagination is restrained, and even his language ceases to be his own. This is again reflected in the nature of scientific 'facts' which are experienced as being independent of opinion, belief, and cultural background." This should actually be more considered in humanist studies such as architecture, urban design, etc.

3.2.2. Positivism

Another significant paradigm of the classical scientific approach is Positivism. This philosophy of science belongs to the philosophical view of Empiricism and it examines the world based on what can be perceived through different senses and also on experimentation (Tabatabaii 1953; Hillier 1972-73; Boyd et. al. 1992).

The main aim of Positivism is the achievement of the unification of science across all disciplines (c.f. Hillier 1972-73; Garfinkel 1992; Boyd et.al. 1992). It means that Positivists deny all value to philosophy and metaphysics claiming they have no theoretical and cognitive content. The positivist's focus on explanation leads to a certitude grounded in the demonstration of a system of cause-and-effect relationships identified by logical and

mathematical techniques which locate the degree of association (Sack 1980). As a result cultural and environmental issues have become objectified and quantified in such a way that all subjective issues have been ignored as irrelevant, non-related metaphysics.

This methodology`s intention is closely associated with terms such as objectivity, quantification, control, prediction, repeatability, explanation, and common verifiability. So it has nothing to do with human symbolic activities such as value systems, myths, arts, beliefs, and world views. Therefore these have been left out of most study into the social sciences "most of the social sciences in the last several decades have been based on the premise of positivism - the philosophical stance that genuine knowledge must be perceptible in time and space and thus is founded on empirical reality and validity" (Bergman 1967; Bittner 1973).

3.2.3. Reductionism

The other influential methodology in human studies is reductionism. Reductionism "has provided convincing evidence in favour of Physicalism - the view that all phenomena are physical or entirely composed of physical entities. Reductionists, as a result, believe that organisms are just collections of cells, and cells are just collections of molecules, etc. Simplicity and plausibility play a central role in determining both the direction and the comprehensiveness of the reductionist methodology (Boyd et. al. 1992). According to reductionism the studies of all human issues such as sociology, economy, psychology, and even biology are physical subjects and physical processes. The reductionistic doctrine is characteristically the simplification of a problem by reducing the dimensions of the studied phenomenon (Garfinkel 1992). In Cartesian terms, reductivism of mechanistic philosophy was elevated to a principle of method of reductive analysis, according to which the whole could be explained exhaustively in terms of the behaviour of its separate parts (Mathews

1994).

Alan Garfinkel (1992) in his book explains the reductionist doctrine and argues that the claim that psychology is reducible to physics or chemistry can be expressed ultimately as the statement that people are just physical objects. There are similar claims that everything is just economics; or that everything is reducible to biology, or that the statement that social laws are reducible to the actions of individuals is a claim that society is just individuals. In microreductions, as Garfinkel argues a certain object can be explained as just the sum of its parts. In microreduction the (upper level) object is explicable by the (lower level) microtheory. Therefore, upper level explanations can, in principle, be eliminated in favour of the lower level explanations. As the result of these ideas "the exclusive" or classical aim of science can be seen as analytical, the separating of facts into smaller units, and disconnected unique causal sets. It means that according to this methodology science was necessarily implicated with two-variable problems, one-way causal sets, one cause and one effect, or with some variables at the maximum (Bertalanffy 1971).

In many instances social scientists, under pressure from physical scientists, were virtually pushed into adapting prematurely the rigours of formal mathematics and the "scientific method" (Hall 1959: PP.50-51). Fifty years ago, it was still possible to think of science as ultimately constituting a set of signs that at the most rudimentary level, would bear a one to one correspondence with atomic facts, and that these could eventually be combined by the laws of induction and verification into a pyramid of laws of greater and greater generality. Scientists on the whole believed this to be the case, and philosophers concerned themselves to show how it would be accomplished (Hillier 1972).

The result of all these classical scientific approaches has been the emergence of the theories in environmental issues which make people, culture, and the built environment frequently disconnected from each other. Even when there is an intention to interrelate these components they will still be considered as separated phenomena. For example, there are ideas which explain the human environment as combination of reality, thought, and language (see Whorf 1956). There have been other notions to explain this as reality, thought, and symbols or references (see Lang 1983; Jencks et. al. 1969). All these theories, models, and ideas which have tried to explain the person-environmental relationship, which are based on atomistic or reductionistic views, have made a serious disintegration between them instead. These kinds of ideas, in practical terms, have resulted in the creation of fragmented environments all over the world.

3.3. Wholeness, Unity, and the New Scientific World View

One of the basic issues in the organisation of human settlement in our time is the way this phenomenon has been considered and examined. Great scientific progress in the 19th century led to the expansion of classical methodology from physics and mechanics into other principles such as those of sociology. The mechanistic world view which is based on classical physics and believes in the random movement of the atoms, conducted by the implacable laws of causality, provokes the determinist view point that classical physics imposes on all phenomena.

3.3.1. What are 'Whole' and 'Wholeness' ?

The concept of wholeness can be examined from both the angle of philosophical world views and modern physics. In some philosophical ideas and particularly in the traditions of Eastern

mysticism, existence has always been considered as a unified whole. In Islamic terms it is called 'Wahdat-e Wujood', which means 'the unity of existence'. The meaning of this term is close to the concept of 'pantheism' in English and in the Eastern world view wholeness and oneness are connected with religious ideologies. In Buddhism it is believed that God sacrificed himself to give the universe the opportunity of existence. The deity divided himself into a huge number of fragments and these form the universe and whatever is in it. In Islamic ideology God is the creator of everything and nothing can exist or happen beyond his will and power. In other words, nothing can exist independently from God. This kind of interpretation of the world makes it a unique entity.

The implications of this holistic world view are vast and run counter to the classical interpretations of the world under scientific method such as atomism as described above. Bohm discusses reality as 'not a set of objects but process and change'. "I regard the essence of the notion of process as given by the statement: Not only is everything changing, but all *is* flux. **That is to say, 'What is' is the process of becoming itself, while all objects, events, entities, conditions, structures, etc., are forms that can be abstracted from this process.**

Further, according to Bohm (1980, 1993) wholeness is what is real, but people find this difficult to grasp, and fragmentation is the result. Our action, guided by an illusory perception, is shaped by fragmentary thought. In other words, reality is a whole but people, with their fragmentary approach, will inevitably be answered with a correspondingly fragmentary response to their examinations of the world. So what is needed is a reexamination of the habit of fragmentary thought, an awareness of it and of its consequences, and thus the opportunity to bring it to an end. Our approach to reality may

then be whole (holistic), and so the response will be whole (holistic). The best example for this different approach in practice, is language. A word becomes meaningful and understandable only if it engages with the whole language. Therefore, the structure of the language as a whole is the relative real entity. Fragmented words gain their meanings only if they represent the real whole. Otherwise, one will be faced with "fragmented unreal meaningless shapes". Similarly, a phenomenon inside a given culture or environment, as a whole, becomes meaningful only if it is examined within its context. Therefore what acts as part of a whole, if it is examined individually will have no meaning, or at least its meaning will be completely different; while this might be interesting at some level, it is of course not real.

We cannot simply equate wholes with the total of the collective of parts (see Bertalanffy 1971; Hillier 1972-73; Bohm 1980; Bohm 1993; Mathews 1994; Bohm 1985). Angyal discusses this point with the following: "In the formation of wholes something more than a summation of parts takes place... The formation of wholes is therefore not additional to aggregation of parts, but something of an entirely different order. In aggregates it is significant that the parts are added; in a system it is significant that the parts are arranged" (Angyal in Mathews 1994: P. 114).

In other words, a whole gives definition to its parts. The significance of the parts, seen individually, will not be the same as when they are embedded in the whole. For the scientific approach that is based on atomism it was a great revolution to accept this holistic notion particularly in human and environmental studies where meaning has to be considered. It is crucial in the consideration of issues related to environmental development and interaction that we accept this holistic point - that no element in the environment has its meaning as an individual isolated entity. Everything becomes meaningful only if it can be seen in its

contextual situation as interconnected to the whole. The other fundamental point here is that to belong to a whole implies a notion of unity of some kind. Whatever is born of the whole, must bear some resemblance to it. Everything that emerges in this whole logically should have some relevance of meaning with the main body, and whatever is introduced into it should also share meaning with it. An example for this is in transplant medicine where compatibility between donated organ and recipient is needed, without which each part could not exist independently.

Taking a plant or animal as a type of whole, we notice the fundamental holistic character as a unity of parts which is so close and intensive as to be more than sum of its parts; which not only gives a particular confirmation or structure to the parts, but so relates and determines them in their synthesis that their functions are altered. Smuts develops these arguments thus: "The synthesis affects and determines the parts so that they function towards the 'whole'; and the whole and the parts therefore reciprocally influence and determine each other and appear more or less to merge their individual characters" (Smuts quoted by Mathews 1994: P.94).

Capra (1983: P.142) rejects the reading of the concept of wholeness as purely some abstracted metaphysical term: "the basic oneness of the universe is not only the central characteristic of the mystical experience, but is also one of the most important revelations of modern physics". This magnificent event should be appreciated in environmental studies because it gives the opportunity of getting rid of atomistic interpretation and intervention in people-environmental issues within which people, their environment, their culture, nature, etc. are considered separately as something outside each other.

To quote Bohm again, (1980: P.173) "the principle feature of the mechanistic order is that

the world is regarded as constituted of entities which are *outside of each other*, in the sense that they exist independently in different regions of space (and time) and interact through forces that do not bring about any changes in their essential natures. The machine gives a typical illustration of such a system of order. Each part is formed independently of the others, and interacts with the other parts only through some kind of external contact." From this explanation it is possible to say that whole is the situation of not being outside each other independently. This includes both subjectives and objectives which are structured in a complicated interconnected form.

An analogy that has been used very frequently, particularly by Levi-Strauss, is that of the music produced by an orchestra. The performers in an orchestra play different instruments; the musical score for each instrument is separate from that of any other instrument, so there is a sense in which each performer is providing a separate 'message'; but what is being communicated by the orchestra as a whole is a unity. The individual messages of the separate instruments only 'make sense' when they are combined as a whole. The individual messages (or, if you like, part-messages) provided by the individual instruments are like incomplete phrases or sentences in a speech utterance (Leach 1976: P.44). In music, there is, a basically similar transformation (of notes) in which a certain order can also be seen to be preserved. As for music, it is sensed immediately as the presence of many different but interrelated degrees of transformations of tones and sounds together. There is a feeling of both tension and harmony between the various co-present transformations, and this feeling is indeed what is primary in the apprehension of the music in its undivided state of flowing movement. In listening to music, one is therefore directly perceiving an implication order. Evidently this order is active in the sense that it continually flows into emotional, physical, and other responses, that are inseparable from the transformations out of which it is essentially

constituted (Bohm 1980).

3.3.2. Wholeness and Modern Physics

According to Quantum theory there is a universal flux in which mind and matter are not separable substances but "different aspects of one whole and unbroken movement" (Bohm 1980: PP.9-11). Such an attitude allows one to look upon all aspects of existence in a unified way. Doing this allows one to bring to an end divisionary or atomistic fragmentation. This also allows us to subscribe to the notion of reality being a unitary flux of events and processes.

Contrary to the classical scientific world view, modern theories in physics do not require an atomistic approach to understand the world. "Relativity and quantum theory agree, in that both imply the need to look on the world as an *undivided whole*, all parts of the universe, including the observer and his instruments, merge into one totality. In this totality, the atomistic form of insight is a simplification and an abstraction, valid only in some limited context" (Bohm 1980: P.11, see also Bohm 1989). As a result both Relativity and Quantum theories force the scientists to see the world very much in the same way as a Hindu, Buddhist, Taoist or Moslem sees it.

In contrast to the mechanistic Cartesian view of the world, the world view emerging from modern physics can be characterised by words such as 'organic', 'holistic', and 'ecological'. It might be called a systems view, in the sense of general systems theory. The universe is no longer seen as a machine, made up of a multitude of objects, but has to be pictured as one indivisible, dynamic whole whose parts are essentially interrelated and can be understood only as patterns of a cosmic process (Capra quoted by Mathews 1994).

David Bohm (1980: P.11) referring to quantum theory, argues that the flow of mind and matter is only implicitly known where mind and matter are not separable substances. "Rather, they are different aspects of one whole and unbroken movement. In this way, we are able to look on all aspects of existence as not divided from each other, and thus we can bring to an end the fragmentation implicit in the current attitude towards the atomic point of view, which leads us to divide everything from everything in a thoroughgoing way". Quantum theory thus reveals an essential interconnectedness of the universe. It shows that we cannot deconstruct the world into independently existing small units. In the words of Niel Bohr, for instance, 'Isolated material particles are abstractions, their properties are definable and observable only through their interaction with other systems' (Capra 1975: P.149).

3.3.3. Wholeness and Structuralism

The concept of wholeness can also be examined through the philosophy of Structuralism. It is indicated here that "whole" is not just a composition of independent units but is actually the result of the laws of systematic composition, which govern the transformation of systems. All structures are transformational systems and are not an aggregation of elements, but an expression describing a set of relations between things governed by some overriding formative law (Hillier 1972-73: P.44).

Wholeness was introduced into the modern era by system theory. One of the most important advantages of the systemic approach is the ability to look at a given phenomenon in a holistic way. In classical physics, theories are connected to the consideration of a specific part of a problem, and seeing the concept of the "whole" is regarded as a metaphysical phenomenon. In structuralism the idea of holism and interconnectedness has been developed to show that wholeness is the transformation of knowledge in a given structure through time (Piaget

1968). Consequently, it is possible to say that the concept of structure is dependent on this transformational process and that the transformational process itself is a key concept in understanding the whole and the way it works. In environmental issues, particularly, this is important because as this research will show the cultural environment can be defined as "nothing but the transformation of meanings".

General System Theory allows socio-cultural aspects to be released from narrow simplified approaches. This has led to the idea that, as Bertalanffy (1971) says, " Scientific control of society is no highway to Utopia". Wallon (quoted by Grynberg 1991: P.368) has argued that "mythologies, philosophy, and scientific theories as systems of thought are concerned with the representation of world structure and human action on it. They constitute the universe of meaning and semiosis relevant to the universe of subjective and concrete experiences."

This does not mean that there is no use for analytical studies or the artificial separation of one element from the concept of the whole. They can be useful but they may not be enough. Human life involves many layers of objectives as well as subjectivities which connect to each other in a very complex structure. Until now, only part of this structure has been taken into account. Subjective issues have been ignored in favour of objectivity and consequently the complex relationship between subjective and objective has been ignored as well. According to Bertalanffy (1971: P.51) the human world is not made just of physics but of something very 'real' in human terms; he argues that it is "the world of 'symbols', 'values', 'social entities', and 'cultures' embedded in a cosmic order." The development of the concept of open systems within General System Theory has given these subjective aspects of human life the opportunity of being taken seriously in human studies. This new concept of people and society has substituted the understanding of the person as a robot for the recognition of the

distinctiveness of human culture as compared to animal behaviour.

The current trend towards 'phenomenological' approaches in opposition to the allegedly 'positivist' line of scientific sociology is largely the result of failing to understand that science today operates in a domain where consciousness and causality do not stand in paradoxical opposition to each other. Structuralism, which follows the established pattern of theoretical science through its investigations of formalism and empirical realities in parallel, has no such problem. Hillier develops the relationship as follows:

> "It allies itself easily with science without thereby implying the eventual subjection of the human race to robot-like control. On the contrary, its subject matter is the condition for human liberation" (1972-73: PP.72-73).

Structuralism, as a methodology, is considered here to be the best one so far to examine phenomena in a holistic way. "Structuralism may be unequivocally defined as those perspectives in the sciences of the artificial which combine these two theoretical ideas: that of the formal basis of phenomenal and morphological variety and that of the system theory of meaning" (Hillier 1972-73: P.58). The concept of structuralist transformation helps researchers to study social phenomena not only diachronically but also synchronically. Therefore, in environmental studies, for instance, not only are physical elements examined in relation to other coincident concepts but also in a semiotic, or evolutionary historical perspective. Leach (1973: P.45) referring to this characteristic has stated "... the structuralist approach assumes that the cultural stuff [sic] within his [structuralist] field of observation, ... consists of man-made things and customary behaviours, all conveying 'information like an orchestra'. That being so, he assumes that it is possible to record the significant patterns in this cultural stuff on some kind of multi-dimensional orchestral score."

3.4. Knowledge, Reality, and Wholeness

The previous sections of this chapter looked at the idea of the oneness and wholeness of the real world. This section explores the relationship between wholeness and our knowledge of it, personally and culturally, in order to better understand our relationship with our environment. This includes a discussion of how an holistic understanding of the world involves a reassessment of our view of knowledge itself.

To understand the connection between the concept of wholeness and environmental studies one has to understand the relation between knowledge and reality because, it will be argued, the environment is an expression of our knowledge about reality. Whatever is known about the people, their habits, values, views, etc. is the result of direct and active interaction between people, and people and their environment. Furthermore, this kind of knowledge is 'subjective' and 'relative' (see Whorf 1956; Bohm 1980; Teymur 1982; Bohm 1989; Feyerabend 1990).

Feyerabend (1988) argues that classical scientific ideas and their related philosophies serve to objectify reality. This is based on the idea of 'facts'. Quantitative laws are preferred to qualitative regularities, matter to the non-material aspects of the world; information based on a few simple principles is regarded as being more advanced and closer to reality than, say, historical information. The principles and entities of the successful scientific areas such as physics, astronomy, etc. are regarded as the real entities; and rest is put away as unscientific, speculation or mere appearance.

But, as we have already seen, a very different attitude has now developed in modern physics.

Physicists claim to have come to see that all their theories of natural phenomena, including the 'laws' they describe, are creations of the human mind; properties of our conceptual map of reality, rather than of reality itself. This conceptual scheme, being human, is necessarily limited and approximate. This undoubtedly has massive implications for the role of science and scientific theory in our lives.

Literature now suggests that human beings will not be able to have a matchable kind of thinking about reality if they do not have a holistic view of the universe. Atomistic ways of thinking will always separate humankind from reality and in the end will create a fragmented environment. Problems of reality arise when the ingredients of our complex worlds are subsumed under abstract concepts and are then evaluated, i.e. declared to be either 'real' or 'unreal' on that basis. Bohm (1980: PP.3-6) argues that "in scientific research, a great deal of our thinking is in terms of *theories.* The word 'theory' derives from the Greek 'theoria', which has the same root as 'theatre', which means 'to view' or 'to make a spectacle'. Thus, it might be said that a theory is primarily a form of insight, i.e. a way of looking at the world, and not a form of knowledge of how the world is." When we truly understand that these theories work in this way, then we will not fall into the habit of seeing reality and acting towards it as if it is constituted of separately existent fragments. We will see that these fragments merely correspond to how it appears in our thought and in our imagination when we take our theories to be 'direct descriptions of reality as it is'. This brings us to a point of acceptance that scientific theory is not sufficient for an understanding of the world or for our interaction with it. It is possible to say that, no single theory can explain the environment which is already more complex than matter itself. We need, and indeed actually do use, other methods to make sense of it.

We remember that Bohm, explaining reality as a process argues that "the notion that the reality is to be understood as process is an ancient one, going back at least to Heraclitus, who said that everything flows". To explain reality as a process he considered reality as a stream within which "substance is never the same." In this stream, one may see an ever-changing pattern of vortices, ripples, waves, splashes, etc., which evidently have no independent existence as such. Rather, they are abstracted from the flowing movement, arising and vanishing in the total process of the flow" (Bohm 1980: P.48; see also Bohm 1993).

"To inquire into the question of how knowledge is to be understood as process, we first note that all knowledge is produced, displayed, communicated, transformed, and applied in *thought*. Thought, considered in its movement of becoming (and not merely in its content of relatively well-defined images and ideas) is indeed the process in which knowledge has its actual and concrete existence." (Bohm 1980: P. 50; also see Bohm 1985, 1993).

Bohm (1980: PP. 58-59) continues "all man made features of our general environment are, in this sense, extensions of the process of thought, for their shapes, forms, and general orders of movement originate basically in thought, and are incorporated within this environment, in the activity of human work, which is guided by such thought. Vice versa, everything in the general environment has, either naturally or through human activity, a shape, form, and mode of movement, the content of which 'flows in' through perception, giving rise to sense impressions which leave memory traces and thus contribute to the basis of further thought. In this whole movement, content that was originally in memory continually passes into and becomes an integral feature of the environment, whole content that was originally in the environment passes into and becomes an integral feature of memory, so that the two participate in a single total process, in which analysis into separate parts (e.g. thought and

thing) has ultimately no meaning." Therefore reality includes the external world, thought, perception, knowledge about it, and the perceiver (For further discussion on perception and knowledge, see Chapter Four).

Teymur (1982), also leans towards an holistic view; "the immediate criticism of binary distinctions (or discriminations) on the basis of the attempted divisions would be that there is no such separation in 'reality'. Similarly, it is suggested, often with power and rigour, that there exists no classification and no boundary in 'nature'. It is 'we', that is the human mind, who impose upon the 'world' a system of classification which, in return, makes the world appear to us as separate, binary, and classified. Feyerabend argues that "Recent developments in the (physical and social) sciences which are holistic, emphasise historical processes instead of universal law and let 'reality' arise from an (often indivisible) interaction between observer and things observed." (Feyerabend 1990: P.6).

Berttalanfy (1971) believes that if we look at only the smallest part of the world, that part tends to assume undue importance, if we look at it in isolation, we cannot grasp its complex and subtle relation to the vernacular matrix with which it forms a total spatial and hierarchic system. It is therefore very important not to consider things as isolated and distinct, but rather to take a view of interconnections of things, and to view systems as a whole.

It is important to bring these theories closer to practice. Firstly, if, as is being said, all natural phenomena are ultimately interconnected, in order to explain any one of them we would need to understand all the others, which is obviously impossible (Capra 1983). The human mind cannot take in so much at once. While conceptually people might understand the unity of the world and the massive interconnectedness of life, day to day they need a system by which to

allow themselves to act. Secondly, different people and different environments have led to a variety of ways of understanding and interpreting the world and its unity, and rather than deny these a way of incorporating them into a body of knowledge is required. It is suggested that, based on these theories, the system of cultural knowledge provides a means to answer these needs, and should be further explored here in its relation to holism.

Culture is a system of connectedness, it interprets and holds a sense of unity and oneness, within a group of people, providing laws, symbols and an agreed structure for the discrimination and interaction between things, through which the individual can interpret his or her world and act within it.

Cultural knowledge is a common understanding about reality which is handed down through generations and within groups so that interpretations of reality are established locally. This means that cultural knowledge of the real world is relative, in spite of the unity of the world. We can see in this way that people's knowledge about reality is not absolute and unique, to the extent that it is possible to say that even space, time and reality change when we move from one culture or language to another (Feyerabend 1990; Barati at. al 1997; also see Chapter Five for detailed discussions about the relativistic relation between language and reality).

So, although reality is unique, knowledge about it is not. According to Feyerabend (1990: P.28) "Knowledge is a local commodity designed to satisfy local needs and to solve local problems; it can be changed from the outside, but only after extended consultations that include the opinion of all concerned parties." In other words, there are many different types of reality. This relativistic local view about reality is basically important in environmental

studies particularly in terms of cultural knowledge. Eventually it is possible to say that the cultural values affect not only the application of knowledge but are essential ingredients of knowledge itself.

An individual needs cultural knowledge to live sustainably in a particular world. This knowledge enables him to notice and to interpret phenomena in the surrounding environment. The quality of people's lives, as a result, depends on this kind of knowledge, and in some situations life itself is threatened if it is lacking. Knowledge includes reading people`s faces, norms, boundaries, gestures, symbols, and so on. When one has correct knowledge about something, this can guide one's action in relation to that thing to produce an overall situation that is harmonious and free from contradiction and confusion (Bohm 1980, 1985, 1993). This is to say that local alternatives should be based on local knowledge, and this local relative knowledge, alongside general theories, should be considered as the basis of people-environment organisation or reorganisation.

In terms of the built environment, this discussion has shown that reality is not just the physical environment. It is constituted of the physical environment, the people who use it, the thoughts they have about it, and the knowledge they create about it through time. In other words, one cannot say people and environment. Person-perception-environment is a unity, i.e. they are not three but one. Further, once we accept that knowledge of the environment is local and interdependent on culture, we can begin to examine the qualities of different cultural knowledge systems without compromising our search for 'reality'. We need no longer assume that any one system is the right way or has the only answer. In place of planning and design theories driven by different ideologies, political views, technology, etc, and instead of seeing people, their culture, environment, and thoughts as different and independent

concepts and making decisions based on such way of thinking we can instead look to the totality and search for appropriateness and consistency in expression of a culture and its knowledge.

3.5. Views of Wholeness and Unity

This section examines the development of different approaches to the concept of 'Wholeness'. As Altman et. al. argue, (quoted by Harting 1993: P.18), different world views "simply result in different forms of inquiry, understanding, and theory". So a theory in humanities and environmental subjects is actually the manifestation of a specific ideology, explaining the world according to the way that ideology wants to see it. However different world views can be misunderstood and misappropriated. The aim here is to explore in more detail the Iranian view of wholeness in relation to other views of wholeness.

From the 19th century onwards, Eastern societies started to use the Western societies' guidelines for a perceived improvement in their lives, particularly in their built environment. This was one result of colonial contact over many centuries, although particularly during this century, and was supported by either an enforced or passive acceptance which allowed this influence to take root. The problem of contradiction developing within indigenous societies when faced with the perceived massive benefits of Western civilisation was compounded by the superficial interpretation of these benefits by the local political and intellectual leaders during the earlier years of this century and the belief that Colonialisation brought 'culture' (for further expression of these points, particularly in relation to Iran`s history see Chapter Two).

The idea was that after a while the people in traditional societies would get used to the evolution of their general built environment using Western models. This utopian idea of progress and welfare did not happen as was expected. An examination of the so called Third World countries shows that what they have gained on the whole is to make many unusual, strange, and rare problems on the one hand, and slow down of real development on the other. This has been, above all, a massive waste of energy and resources.

The result of research in Chapter One of this thesis shows that in Tehran people have not accepted the modernisation programmes. It seems that the fundamental problem here was the contradiction between the main stream of Western and Eastern ways of thinking in terms of their interpretation of the world, life, and its development. It is not the fact of change that is the problem of development but the nature of change itself and the way it took place. One may argue that because the Iranians were a traditional society the people might not be able to adapt themselves to the huge and rapid changes. However it is evident that Iran`s history is the history of change itself, and this is not explanation enough. The question, therefore, is what was the reason for Iranians not to accept modernisation.

In this section the main objective is to show that this rejection has a very deep reason which looks back into the way Eastern and Western ideologies see the world and communicate with it which led to their incompatibility with each other when combined in a single city (see Mathews 1994).

3.5.1. Holism`s Challenge to the Western World View

Capra (1975: PP.23-29) argues that in contrast to the "mechanistic Western view ... the Eastern view of the world is 'organic'. For the Eastern mystic, all things and events perceived

by the senses are interrelated, connected, and are but different aspects or manifestations of the same ultimate reality. The difference between Eastern and Western mysticism is that mystical schools have always played a marginal role in the West, whereas they constitute the mainstream of Eastern philosophical and religious thought". The parallels to modern physics, Capra continues, "appear not only in Hinduism or Buddhism but also in the fragments of Heraclitus, in the Sufism of Ibn Arabi, and the like."

According to Paul Feyerabend, our tendency to divide the perceived world into individual and separate things and to experience ourselves as isolated egos in this world is seen as an illusion which comes from our measuring and categorising mentality. This illusion can legitimately be seen as an abstraction and generalisation of modern rationality. He also argues that rationality appears in ancient Greece as an example of an attempt to devalue earlier forms of knowledge. It accounts for a tendency to replace the bartering of good with the abstraction, money (Feyerabend 1987).

Perhaps, for the purpose of this thesis and its relation to urban design we could look at the progressive modification of the status of the term 'neighbour' in this context. In parallel with Feyerabend`s argument related to abstract generalisation, the fate of indigenous neighbourhoods was progressively replaced by abstract political, physical, or social entities. The tribe with all its familial implications was replaced by the 'democratic' city state. Neighbourhood relations, indeed, could be seen and identified as political, social, religious, economic, and so on. The point is that it is not possible, in the real world, to classify these kinds of relations under one of the above-mentioned aspects or even a combination of some of them. Neighbourhood relations are neighbourhood relations as they are happening. It is not also possible to make a set of fixed pre-structured regulations to limit people in their

relations in this issue, i.e. one may have different level of relations with one's different neighbours. On the other hand there is very basic difference between cultures in this issue (e.g. Hall 1966; Barati et. al. 1997). These differentiations indicate that every aspect in the environment should be seen in relation to the whole concept of culture and not be predicted in a simplistic way nor be translated directly from one culture to the other.

On the other hand, as Mathews (1994: P. 8) suggests "in the Eastern view the world is considered as a unity in which the appearances of plurality and diversity are no more than ripples on the surface of an oceanic continuum. The most important characteristic of the Eastern world view - one could almost say the essence of it - is the awareness of the unity and mutual interrelation of all things and events, the experience of all phenomena in the world as manifestations of a basic oneness." All things are seen as interdependent and inseparable parts of this cosmic whole; as different manifestations of the same ultimate reality. The Eastern traditions constantly refer to this ultimate, indivisible reality which manifests itself in all things, and of which all things are parts (also see Capra 1983).

The holistic way of the interpretation of the world is in the nucleus of the Eastern social philosophy. Actually, "in Eastern philosophies classification of the world is considered as a human invention because the world is not given to us in a classified form. In contrast to Western philosophical traditions, Eastern epistemology, i.e. Eastern languages, emphasise totality and even a unity of opposites such as Yin and Yang in ancient Chinese epistemology (Teymur 1982: P. 64; Skinner 1989).

In the East "although the various schools of Eastern mysticism differ in many details, they all emphasise the basic unity of the universe which is the central feature of their teachings. The

highest aim for their followers is to become aware of the unity and mutual interrelation of all things, to transcend the notion of an isolated individual self and to identify themselves with the ultimate reality" (Capra 1983: P.29). One of the main schools of Eastern mysticism was associated with the teachings of Islam. Oneness, wholeness, and unity are the ground of all Islamic principles and laws.

Teymur (1982: P.164) discussing changes in the European world view after the Renaissance also argues that Man, who in Christianity is the mirror of God, in the new bourgeois ideology became the 'individual man' with his 'free will', rights and choices which instead of representing God was supposed to represent the 'ideal man'. This could not happen in most Eastern societies, including Iran, where oneness and wholeness still dominate, not only in spirituality, but also in the daily social life of people. This is a huge attitudinal and cultural difference between Eastern and Western societies.

3.5.2. Wholeness in the Iranian Culture

Iranian culture, like the other Eastern cultures, takes a holistic world view. From its inception as a new religion, Islam strongly emphasised wholeness and the unity of the world. Therefore to find out how people perceive the external world we need to examine how Islam as the ideology in Iranian culture, interprets the world. The objective here is to find out to what extent Islam as an ideology is influential in people's perception and interpretation of the built environment. Teymur (1982) states that every ideology is sustained and unified by its social structures. It might be possible to say, then, that the structure of the built environment is also interconnected, subjectively, to the ideology in one way or another. Ideology, as part of the cultural knowledge, is a basic tool by which people see the environment and interpret it.

The Iranian nation, like the other ancient societies of the East, has always been a religious society. The most important characteristic of these societies is the holistic interpretation of the world. To believe that every thing in the universe has a unique creator is the main base for perceiving it as a whole unity. The cosmos, therefore, reflects the Divine Principle and so does man, and man is himself intimately related to the cosmos. He is the microcosm and, like the cosmos, reflects the Metacosmic Reality." (Nasr 1971: P.12). In other words, people themselves, as a part of the universe reflect the Divine. Thus the universe and its container, being the reflection of God, are a unique sacred united whole. In other words, according to Islamic doctrine, there is nothing but God, his will, and his power.

There is a fundamental conflict between this local holistic world view and the global atomistic one which was brought in with the modernisation programmes. When these ideas were materialised in the urban textures, this conflict showed itself explicitly and objectively. The incompatibility of modern as against traditional or Western against Eastern emerges from this contrast. In Western societies it might be argued that the scientific world view has gained dominance over society in the place of religion and atomism has replaced holism. For some reason this does not seem to have happened in the Moslem societies. This situation has made it very difficult to transform, rather than impose or at least superficially adorn, atomistic ideas from the West into these societies.

"Islam" as a religion, is a way of unity and totality. Its fundamental doctrine is called Et-Tawhid, a term that is interpreted as unity or the action of uniting. Every aspect of Islam reveals the same principle (Abdal-Hadi quoted by Nasr 1964). Islam considers itself as the primordial religion because it is based on the doctrine of unity [and wholeness] which has always existed and which lies in the nature of things. According to Islam God did not send

different truths through His many prophets but different expressions and forms of the same fundamental truth of unity (Nasr 1966). In such an ideology there is a unified explanation of history alongside of the unification of the world and environment which must include the human being. As a result, in this holistic world view, people, nature, and man-made elements, as well as subjective values, are all seen as the consequence of the will of God, and as the expression of Him. Within this scheme, whatever creates an atomistic situation cannot be easily accepted because it conflicts with the comprehensive holistic understanding of the universe in the Moslem societies. This is the main philosophical issue that the advocates of the Western version of modernism in Eastern societies now might need to address.

According to Islam a person can and should be in himself a unity, an image of the Creator and His representative (khalifah) on earth. The family is also a unity; it is a society within a society. People, family and society are cast according to the idea of unity of which there are many adaptations. Nasr (1973), on the other hand, argues that **"Persia has been regarded in Islamic history as one of the outstanding centres for what is known as Islamic art, and its architecture is one of the richest to be found anywhere. By taking the most fundamental principle of the Islamic tradition, namely unity (tawhid), Persian architecture of the Islamic period has sought to integrate all its features so as to lead to this unity."** This way of thinking has led to the point in which the objective and subjective aspects of life become mixed together to the extent that, as Bammate (1987) argues, **the traditional cities in Islamic societies within which all the physical and social characteristics are compacted in an interrelated network, make a single house out of the whole of the city.**

In the Eastern view therefore, similar to the views of modern physics, everything in the

universe is connected to everything else. The properties of any part are determined, not by some fundamental law, but by the properties of all the other parts. According to Capra, both physicists and mystics realised the resulting impossibility of fully explaining any phenomenon, but then take different attitudes. Physicists, as discussed before, are satisfied with an approximate understanding of nature. The Eastern mystics, on the other hand, are not interested in approximate, or 'relative' knowledge. They are concerned with 'absolute' knowledge involving an understanding of the totality of Life. Being well aware of the essential interrelationship of the universe, they realise that to explain something means, ultimately, to show how it is connected to everything else. As this is impossible, the Eastern mystics insist that no single phenomenon can be explained (Capra 1983: P. 321).

Some thinkers believe that Islam itself is the knowledge of integration. Nasr (1968: P.22) argues that "Islam leads to that essential knowledge which integrates our being, which makes us know what we are and be what we know, or in other words integrates knowledge and being in the ultimate unitive vision of Reality." Islam as a belief system integrates all the universe together in one way or another. It means that a believer in Islam, unconsciously, sees everything in the surrounding environment as integrated with each other, i.e. there is no objective-subjective classification. There are many examples for this statement. "In Quranic literature to address the whole nation of Islam the expression of 'the house of Islam', *Beytol Islam*, is used frequently which refers to the unity of the Moslems all over the world" (Bammate 1987: P.88).

In ordinary daily life "we are not aware of this unity of all things, but divide the world into separate objects and events. This division is, of course, useful and necessary to cope with our everyday environment, but it is not a fundamental feature of reality. It is an abstraction

devised by our discriminating and categorising intellect. To believe that our abstract concepts of separate 'things' and 'events' are realities of nature is an illusion." (Capra 1975: P.142). For example, "the boundary between Man and the Environment, even assuming for a moment that there are two such elements, is an imaginary boundary and not a real one." (Teymur 1982 P. 63). To understand and examine the environment we may need to see it as a sum of separated phenomena, i.e. to put artificial boundaries between things. The problem will rise, then, if one replaces this abstraction approach and its result with reality. This kind of approach is based on a diversity allowing no unity between the separated ingredients. Diversity in addition to unity is the other basic principle of Islam as a doctrine which shows that diversity and classification are accepted as a necessity of understanding. This understanding, of course, is not correct if the phenomenon is not examined in the contextual base of a particular culture.

Now we can concentrate on the implication of the holistic interpretation on the built environment according to Islam. Nasr (1971) believes that the unitary point of view traditionally embraces not only architecture in its totality but all of the elements that together create an architectural form, such as space, shape, light, colour, and matter. Because the unitary point of view so emphasised in Islam leaves nothing outside its scope and refuses to recognise a legitimate domain of the purely secular or profane existing in contrast with the sacred, all Islamic Architecture, whatever its use, is seen in its traditional setting in the same light as the strictly "sacred" architecture such as that of the Mosque.

Nasr continues by indicating that mosque architecture, as well as the house which in Islam is itself inspired by sacred architecture is, therefore, also a replica of the cosmos and the locus of the encounter of people and the Divine Word or Logos (the symbolic meanings of the

house will be discussed in Chapter Five). Of course, in reality, according to Islam, God is everywhere. The flowing symbolic meaning, or quality, of one space moving into another in vernacular built environments in Iran is the ground of their wholeness, as well as their unity in relation to other mosques. In Iranian vernacular architecture and urban form we can easily find the transformation of subjectivities into objectivities and vice versa. For instance, in Western architecture, façades have a presentational role in which the use of different elements such as materials, decorations, windows, statues, columns, coloured glasses, etc., at once display the social status of the owner of the house. Bammate N. (1987) argued that in traditional Islamic cities nothing makes obvious the economic status of the people at the first glance. This attitude, in addition to the creation of the condition of integrating sameness, could provide common feelings of security due to rich and poor living beside each other, allowing for sustainable interrelationships between people through their relationship with the environment.

Nasr (1973) argues that Iran, with one of the richest architectures in the world, has taken the most fundamental principle of the Islamic traditions namely unity (tawhid) and thereby sought to integrate all its features to achieve it. This was possible in the past because there was, relatively, more opportunity for people to exercise their beliefs and to set up their values in the built environment. With the introduction of universal, globalised ideas came a lack of consideration of the local values and beliefs, and, local cultural knowledge about the organisation and reorganisation of the spaces was ignored as irrelevant. One may argue at this point that people-environment fragmentation starts.

3.6. Environmental Perception in Atomistic and Holistic Approaches

There can be no doubt that some magnificent and glorious buildings have been created by and within the culture of atomism, modernity and individuation. The ability to see the world as 'packets' of knowledge, time and different entities allows for a freedom from the past and present, from other ideas and rules. There is space for individual self-expression and experiment, and many new forms, materials and structures have developed in the built environment as a result. The Western, and arguably also the Westernised, cultures have applauded and pursued this for many decades, if not centuries.

This, however, is not the case in cultures where the people are used to seeing the environment as an interconnection of everything with everything else. So when buildings which have been created for the individuated society are adopted by other cultures, it is difficult for people to read the buildings, and ultimately the buildings will fail precisely because of their success in individuation, because they become abstractions, single statements in a limited time and space, they have no interconnection.

Finally, it has been recognised by the Western cultures that the pursuit of individuation in the built environment is also leading to problems of fragmentation and there is a body of writing dedicated to exploring this in the Western context. This combination of effects of atomisation is the position that is to be examined in this section.

3.6.1. Atomistic View in Relation to Perception of the Built Environment

We have shown above how recent thoughts show that all the ingredients of the universe are naturally integrated and that correlation is real and independent from the human imagination

(Tabatabaii 1971). Atomism is an attempt to analyse the world by division, and in this view extends the analysis of the world into separated and articulated parts further than is appropriate; it is in effect an attempt to divide what is really indivisible. Furthermore, such an attempt leads us to try to unite what is not really unitable. This can be seen especially clearly in terms of grouping of people in society, because the members are really already connected with the whole, this cannot work (Bohm 1980: PP.15-16). Bohm goes on to argue that "fragmentation is now very widespread, not only throughout society, but also in each individual; and this is leading to a kind of general confusion of the mind, which creates an endless series of problems and interferes with our clarity of perception so seriously as to prevent us from being able to solve most of them." This confusion is very obvious in societies in which objective-subjective discrimination has not been part of people`s perception until recently (this point was discussed in detail in Chapter One).

There have been many studies exploring the theories that in vernacular societies 'traditional' people live in a universe that is meaningful (e.g. Nasr 1973), whereas in modern societies "people inhabit a meaningless and arbitrary world, and their own lives are accordingly, objectively speaking, meaningless and arbitrary, imbued only with the value and significance that they attach to them" (Mathews 1994: P.38). Mathews continues that "It is impossible, in such a context, not to suffer at some level from feelings of isolation, alienation and angst - the well-known psychic malaise of the modern human being." What atomistic and mechanistic world views have done in so many urban areas is to replace an alive environment with a dead artificial fragmented one.

Environmental ingredients gain their meanings by being part of a whole. As a result each person potentially can understand the meaning of every element in the built environment and

should have an overall knowledge about the whole environment, including the built environment, readable as part of the universe. The best example for this point is readability of one word in the context of a given language as a whole. The atomistic tendencies of modernism have ignored this 'wholeness' in the environment for a long time.

"The notion that all these fragments are separately existent is evidently an illusion, and this illusion cannot do other than lead to endless conflict and confusion. Indeed, the attempt to live according to the notion that the fragments are really separate is, in essence, what has led to the growing series of extremely urgent crises that is confronting us today. It created, for instance, an overall environment that is neither physically nor mentally healthy for most of the people who have to live in it. Individually there has developed a widespread feeling of helplessness and despair, in the face of what seems to be an overwhelming mass of disparate social forces who are caught up in it" (Bohm 1980: PP.1-2).

Hillier (1972) has stated that when someone makes something, he puts part of himself into it. This unification between the person and hand made objects is, of course, a matter of the subjective. In the natural process we put part of our symbolic meanings into our products so that we can understand and communicate with them. On the other hand, the ingredients that form and accompany our perception such as will, love, dislike, preference, anxiety, knowledge and so on are non materialistic entities and do not have the characteristics of material, and therefore, they are not available to scientific analysis, however at the same time they cannot be separated out of the material objects that embody them. These ingredients are the key as to why we can see a continuity and unity in the indigenous built environment, both synchronically as well as diachronically, they provide a continuity of spirit which is built into every newly built building or aspect of the environment. It is as if it is a flow of spirit, a flow

of meanings, that interconnects buildings, people and culture over time and from building to building, object to object. These intangible ingredients, which are there to be understood and read in the environment by people, have somehow come to be disregarded and even misused by professional designers and planners in recent developments. Either they have not been recognised or they have been reappropriated in the search for individuation.

We know that when one makes a pot, for instance, one uses imagination about doing it before starting. This imagination is already shaped and affected by culture, or by the existing environment. Therefore there is a transfer of cultural criteria into the production of an artifact whatever it might be. The main question now is whether one can imagine any belief or value out of the cultural context? Any physical element in the built environment cannot have meaning, i.e. be understood, without it being unified with the whole, this is part of 'culture'. Nasr S. H. (1973) also speaks of "cultural teachings that were once evident to all men but which have become even more forgotten and neglected in the West since the advent of what has come to be known as the Renaissance and among the modernised classes of the East since the spread of the modern mentality from the end of the last century."

In the Renaissance, Mathews (1994: P.39) argues, "the atomistic model was early adapted to other disciplines within science. The analytical method was equated with scientific method, and analytical, reductive explanation was equated with explanation *per se*. The concept of any other, more holistic form of explanation was neglected, if at all understood."

3.6.2. The Basic Principles of Holistic View in Relation to Perception of the Built Environment

In general terms, to look at the world as a whole opposes the atomistic view and integrates

the fragmented pieces. The holistic approach does not accept the cutting of phenomena into isolated parts without paying attention to the reality that they are a whole. This is because the relationships of different parts to the whole are seen as being as important as the parts themselves. The resulting network of interconnections between the various elements in the environment shows that the manmade environment as a subject is not as simple as might be suggested by the fragment-oriented views such as Positivism. What is more, the notions of "whole" and "wholeness" need no longer be considered purely as metaphysical notions transcending the boundaries of science, or to be out of the reach of Western minds because of differences in philosophy or religious outlook; the General System Theory is one of many movements in scientific thinking to endorse the validity of the notion.

In the Ancient Greek philosophy, the word *form* meant process or the *activity* of forming, the cause of the growth of things. It then referred to the development and differentiation of various essential forms. This might be described these days as *Formative cause*, because it is not the imposition of a shape from the outside, but what is implied is a movement from within the essence of things, with a certain structure and order to it leading to an end product. What is important here is both that the Ancients considered this notion of cause to relate equally to the mind, life and the cosmos and that Quantum Theory and General System Theory currently confirm this attitude (Bohm 1980, 1989).

The above-mentioned 'whole' and 'form' are two very basic concepts in people-environment perception. They are connected by a third very important principle: 'meaning'. Meaning is the expression in form of what people know and understand of the world. Meaning is also the reading we give to form in order to place it in the context of the whole. These three principles therefore enjoy an interdependency by which each is known through the other two.

The author argues that 'Wholeness' is actually a very subjective, intangible structure. To see, know and understand wholeness, 'form' is required because it objectifies, makes solid, real and sensible. However, form and wholeness alone would have to just be, and would be unreadable by people or society. If the world were just forms, a 'whole' of forms, we would term it chaos. Chaos is a state where the structure of the forms and events around us are meaningless, that is, they appear to have no order to them and are unreadable. It is meaning which gives us a map of the embodied whole we find ourselves in.

Put another way, the whole is there whether we perceive it or not, but there should be some mechanism by which the law of 'whole' is brought into the material world. Meaning is one link for humankind between the whole and form. Meaning is something we impose on things in order to relate to the whole, to bring sense and order to the forms around us. It is the transformation of our perceptions of the whole into the parts. Meaning is also the way we discover (relate to and become part of) the whole. When we learn meaning from forms, we gather more evidence and understanding of the elusive whole. This is a cyclical relationship, as with a language where we learn more of the language as we learn more words, and we can only understand new words through the context of the language. All the time we are making and gathering meaning, gaining richer knowledge the more we understand and know. So form, meaning and wholeness work together in our understanding of the world.

This then links into cultural knowledge. We gain our understanding of the world and its essential interconnectedness through both our experience of forms and the imposition of meaning onto forms. But we do not do this in a vacuum. We learn and develop in interaction with the people and environment around us, which already hold a version of understanding and knowledge, a structure of perception about the world, namely a culture.

In the built environment we can see this in the following illustration. Builders in different cultures may have the same scientific and technological information and even the same materials. This is one aspect of knowledge, and they hold it in common with each other. However, each builder comes from a different culture, and uses the scientific knowledge in different ways. Each builder has a different vocabulary of forms, which will often relate to different functions within the context of his culture. This culturally related vocabulary is another part of his knowledge and is not held in common with the other builders. When the builders create their forms, they are investing cultural meaning (cultural knowledge and function, with signs to be read by the users, with reflections of past use and meanings) into the world. This form is therefore an embodiment of an aspect of the whole, as perceived by the builder from a specific culture, and stands in the world to be handed down to future generations. Form therefore creates and is created by cultural knowledge, using meaning, and reflecting an aspect of the whole.

Meanings and forms are developed through the process of human history. In Iranian culture, for instance, the primitive word for shelter is manifested in some name such as 'kolb-e', small and very simple house made by reed and mud, the same as 'kookh' with simple pattern and material. On the other hand, there is another synonym for house which is 'saraa' which metaphorically means 'world'. This is associated with the most complicated and magnificent form of vernacular house in Iran. Whereas 'saraa' is the developed meaning of 'kolb-e' or 'kookh', the same has happened to these two types of meaning in terms of form and structure. Whole, therefore, includes both meaning and form, but it is meaning which transforms whole to different forms in a continual process (e.g. see Chapter Five; Barati et. al. 1997). This transformation is a crucial point in the process of perception of the environment by the people because they link to the environment through this process.

The traditional built environment and its hierarchical order of spaces express this perceptual world. The concept of top/down appears in every aspect of Iranian culture, for instance, it can be found in the Persian language, social behaviour, social values and symbols as well as in the spatial organisation of the environment (Barati 1996). Patterns and forms are significant because they are the manifestation of intangible abstract imaginative qualities through quantitative, concrete artifacts. In other words, there is a holistic unity containing both abstract values and symbols, and their expression in objective realities. One significant development made in the process of modernisation programmes was the use, adoption and substitution of some irrelevant patterns and forms which were not representative of the local cultural values and symbols, which led to confusion among the users, consciously or unconsciously.

The systematic interaction between people and their environment is sustained because of the possibility of both continuity and transformation of the whole through time and over generations. Many of the Piaget`s experiments showing the development of the concepts of time, number and movement can be seen as examples of how a child may develop the ability to construe certain events in the same way as others in the culture construe them (Bannister et. al. 1986). A human child by learning to discriminate, interpret, and even see the outside world in similar ways to others, and gradually shapes himself to be like the other members of society. So it is possible to say that, for a child, general instinctive perception of the external world gradually develops into a culturally affected perception. Therefore, as within culture itself, the uniqueness of people and their society, as well as their environment, is based on relativity, i.e. a specific behaviour which could be admired by a person from a given society may not be acceptable for a person from another culture. Whorf goes on to develop this cultural relativism by suggesting that human understanding of the external world is

directly related to the language he speaks (Whorf 1956). This idea is examined in more detail in Chapter Five.

3.7 Concluding Comment

People need to separate things to understand them but one has to be aware of this imaginary separation of one ingredient from the whole. It is too unreal to analyse an environmental matter as a separate existence. Another significant point is that in the case of objective phenomena in the built environment it is not enough if we just see it in an objective context. In terms of wholeness and oneness objectivities and subjectivities are in a transformational process. Knowledge is continually becoming things, and things are becoming knowledge. This way of thinking and reacting to environmental issues will lead to a kind of knowledge which is the base of wholeness itself. Only a view of knowledge as an integral part of the total flux of process may lead generally to a more harmonious and orderly approach to life as a whole, rather than to a static and fragmentary view that does not treat knowledge as process, and which splits knowledge off from the rest of reality (c.f. Bohm 1980, 1985, 1993). The implication of this is that we need to change our perception of the world from one of reality as being of a fragmentary nature, which is an illusion, to seeing the reality of totality as an actual process. This will enable us to bring thought, perception and action into a harmonious and orderly single movement, in which analysis into separate parts (e.g. thought and thing) has no meaning (see Bohm 1980, 1985).

Having reached this point, it is necessary to ask: how do we actualise this understanding and how do we make it relevant to the design and planning process without falling into the trap of reductionism, positivism or any other "-ism"? The answer to this is to return to the

fundamental. If we look at what thinkers such as Bohm, Feyerabend, Capra, Mathews and others recommend, it is to do with changing perception. This is not adopting a new style or plan but rather an urgent need for people and policy-makers, to see life differently, to have the kind of perception within which the world is not an agglomeration of things, rather it is a process of becoming, changing, flexibility and identity; it is not a small matter, it is a matter of people changing their own perception and awareness.

With a change in perception, everybody becomes more aware of the results of their actions and the nature of their interactions, and they build respect and consideration for the context of elements of the environment. A concern for unity and indigenous development is a direct consequence of such a perception, as is the willingness to watch results of building and planning actions over time. Awareness therefore leads to a greater understanding of the processes of time, place and culture.

If perception is to change, we need first to ask 'what is the nature of the perception process and what is it in relation to culture?' This will be examined in the next chapter.

Chapter Four

Culture and Perception

4.1. Introduction

In the previous chapter it was suggested that people see and understand their own environment in its context, therefore this understanding or knowledge is relativistic and is nothing other than culture itself. What societies are facing in the present time is a very complicated situation. There is a tendency towards adopting a global culture which is influenced by the methods and approaches coming from industrial countries resulting in a series of conflicts with the indigenous and local cultures. Such conflicts could be observed also between indigenous populations and their central governments which tend to apply these methods for the development of their countries. An old oriental story illustrates this contradiction:

" Once upon a time there was a great flood; and involved in this flood were two creatures, a monkey and a fish. The monkey, being agile and experienced, was lucky enough to scramble up a tree and escape the raging waters. As he looked down from his safe perch, he saw the poor fish struggling against the swift current. With the very best of intentions, he reached down and lifted the fish from the water. The result was inevitable."

(Adams, Don quoted by Phatak V. Arvind 1995: P. 46)

Intervention into the built environment within local culture requires a particular method to study the concept of 'culture'. It also requires a thorough understanding of how culture influences people and their environment. This chapter deals with the concept of culture generally and with the Iranian culture in particular. The way people interact with culture and construe the environment through it will be also discussed. The main objective here is to reconfirm the notion of holism introduced in the previous chapter in order to arrive at a better understanding of the phenomena of people-culture-environment relationships. It would help very much before embarking on this task to find out about culture; its meaning and implication within people-environment relationships.

4.2. What is the Meaning of Culture?

Chapter Three developed the idea that an holistic view of the built environment is possible if it is examined in the cultural context. Now the concept of culture itself will be studied in order to establish its role within the scope of the philosophy towards indigenous development proposed by this thesis.

Culture as a structure of knowledge is not a phenomenon which is subject to the physical characteristic of its particular territory only. Culture extends beyond its geographical boundaries to include an interpretation of the world and cosmology. Culture is also capable of interpreting other cultures and the ways in which other people construe the world. This is a very distinctive view of culture which relates it to nature and the universe as opposed to those views which relate culture to technology, history, economics or other ideologies (see Altman 1980). Culture, as well as values and thoughts, also includes other more conspicuous elements such as artifacts and behaviour. Behaviour is particularly important due to its direct

implication in providing an understanding of both the individual and the group and how they connect to the environment. A person's behaviour is based on a commonly shared system of values, beliefs, and attitudes which are pertinent to a society (see Phatak V. A. 1995: P.46). However one of the main issues now is to establish an answer to the crucial question of what is "culture", or, what definition of culture is most appropriate particularly in relation to the environment.

There are many dictionary entrances for "culture". In the Encyclopaedia Britannica, for example, there are more than one hundred and sixty definitions for the word. Generally, therefore, "culture is a complex whole which includes ... belief, art, morals, customs, and any other capabilities and habits acquired by man as a member of society." (Herskovits Melville In Phatak 1995: P.48). Culture, according to a different definition, can be associated with what people do, how they do it, or the way they think (e.g. Rapoport 1980b, 1981; Altman 1980).

In Persian the word culture has several meanings. Rooholamini (1986) gathered together the most common meanings of the word "culture" in this language. Some of the suggested meanings are as follows:

1. Knowledge, profession, and science,
2. Techniques and knowing about sports (the importance of sports and exercises might be explained in terms of the association of fitness and the ability of facing the enemies, so knowing about and participating in sports is considered as having culture),
3. Knowledge and Art,
4. To learn and to apply learning (culture lives because it is learned and applied),

5. Wisdom, glory, courtesy, and deliberateness,

6. Appearance of spring,

7. Education and literature,

8. Politeness, education, and sociability.

We can notice, therefore, that in Persian the basic meaning of culture has a strong association with knowledge, its acquisition and application. The real meaning of culture is not only associated with the final manifestation and production of behaviour patterns and artifacts in a given society but also the knowledge which persuades people to do, or to create them. Grynberg (1991: P.637) claims that "language, the arts, rites, myths, and science are different types of complex cultural symbolic forms." Feyerabend (1990), on the other hand, has argued about reality and its related local relativistic knowledge. As a result, it is possible to say that culture is holistic local knowledge about reality.

The following characteristics can be identified in the literature on culture:

1. Culture exists in the minds of individual human beings, who have learned it in their past associations with other human beings to guide their own continuing interaction with the external world.

2. Human cultures vary considerably one from another in terms of interpreting the external world. Therefore, it can be said that cultures are local rather than global.

3. Culture as local relativistic knowledge is a process which is related to thought in the way it grows and in its movement of becoming.

4. Once a culture has been learned and accepted, it tends to persist.

5. All cultures are gradually and continuously being transformed. They are in an

evolutionary process, therefore, exhibiting a consistent pattern of change.

6. Individuals share the same value systems within a culture, although they may behave differently in response to a given situation.

The literature also identifies a number of roles for culture:

1. Culture enables us to communicate with others through a language that we have learned and that we share in common. This language is not only verbal, but also non verbal.

2. Culture makes it possible to anticipate how an environment, including other people in our society, are likely to respond to our actions.

3. Culture includes a value system by which one can distinguish between what is considered right and wrong, beautiful and ugly, reasonable and unreasonable, tragic and humorous, safe and dangerous.

4. Culture provides the knowledge and skill necessary for meeting sustenance needs. It also provides vital knowledge for people to cope with the external world.

5. Culture enables us to achieve a sense of unity with a particular environment which includes ourselves in the same category with other people of similar background.

The relationship between people and environment is a complex phenomenon. According to Maslow (1987) people have different needs and their relationship to the environment is fundamentally connected to these needs. Needs start from the very basic such as physiological to the more subjective and abstract ones such as those related to cognition and aesthetic experience. If biological needs were the only reason or cause for interaction between people and their environment there should be a global similarity among peoples, but this is not the case. What is usually seen instead is local diversity and local relativity in both

thoughts and artifacts. Even within the same climatic conditions throughout the world there is a variety of built forms to be seen (Rapoport 1969). A number of natural conditions such as climatic, physiological, etc. are not the only determining factors involved in shaping responses to the environment. Cultural response is a manifestation of bounded relative knowledge.

It is necessary to avoid any reductionistic ideas of similarity among human beings, even at the physiological and biological level. In the same vein there is a developing opposition to universal similarities in terms of emotions and motivations. For example, previously held ideas of a global analogy for human emotions (happiness, anger, fear, and so on) and motivations are disputed now. Wierzbicka argues that there is strong evidence that most of the emotional reactions which have been considered as similar among all humans are not actually the same at all and that there is a relative response among peoples to various emotional and motivational stimuli according to their culture (Wierzbicka 1992; also see Barati et.al. 1997).

We inherit different emotional concepts from our own cultures and use them to recognise a range of possible events and ideas (Russell and Bullock 1986). In other words the diversity of our emotions is the expression of cultural and environmental differences rather than purely biological and physiological factors. Therefore, it is not possible to generalise when considering the nature and content of human emotions. John Lang (1988) argues that cultures all over the world are unique because they have their own historical backgrounds. For, each culture is the result of long term involvement of people with their physical and social environment and it is not possible to find even two societies in the world with completely similar situations in the historical perspective.

Russell and Bullock (1986: P. 338) wrote: "Happiness, anger, fear, and the rest are concepts we inherit from our culture to distinguish types of events". Whereas people inherit different kinds of emotion from their own culture it is not appropriate to discuss human emotions and feelings in general even when people are physically the same. The patterns of behaviour are basically different in various societies although they all are deeply rooted in human biology and physiology (Hall 1966; Leach 1976). This point is very important because the implication of these ideas is an argument against globalising forms or patterns of behaviour. Within an holistic view people`s preferences, emotions, and perceptions of semiological patterns are only meaningful in a cultural context.

This point naturally then applies not only to emotions but to other aspects of cultural life too, such as ideologies and religion. Rapoport (1980b: P.288) talks of culture as "a habitual set of choices which reflect an ideal human being, an ideal life and, hence, an ideal environment"; it is an integrated cluster of beliefs, values, symbols, and rituals which require a united type of world view. This system, on the one hand, can keep people under the cover of sharing, belonging, and identity, and helps to establish different variations of environment each with a particular identity. Religions then, may have aspects which unite them across cultures, but also have these local variations, their own cultural perspectives. In addition to religion, there are other aspects that create relativism in the cultural context such as history, language and ecology. Relativism as a concept in this discussion embodies questions of difference between the typologies of the knowledge structure or indigenous construal systems of particular cultural groups. Relativism as a term implies not only spatial difference in knowledge typology but also a temporal difference. It has been mentioned above that culture is not static but an evolving phenomenon and in its changes may introduce relativities into the history of its knowledge development.

The concept of a universal culture emerged as a result of the dissemination of views and ideologies following the Industrial Revolution in Europe and strongly underpinned the uniformity of classical scientific views such as positivism, reductionism and to a certain extent the theories and methodologies of empiricism. The arrival of these views in human studies and environmental issues on the one hand, and the globalisation of ideas and concepts, on the other, resulted in weakening cultural relativism. Consequently, people, for the first time in history, have had to deal with the phenomena of mass media, mass production, mass consumption, all created by and characteristic of what might be called the 'international culture'.

The idea of globalisation of humanities is mostly related to individuals` physiological, biological, and psychological reactions and behaviour rather than to their culture. It is possible to argue that preferences in all societies are determined by people`s world views so that the emerging social environments lead to different manipulations of the physical environment in terms of its use of resources, architecture, etc. Rapoport (1989) argues that these manipulations should be based on the laws and regulations of a governing culture. This is one of the main reasons for places to be recognisably different from each other.

It is possible to find many examples of cultural relativism in issues of the built environment. Brown (1973), for instance, has compared the organisation of movement in American and Moslem cities. He argues that while US cities maximise movement and accessibility, traditional Moslem cities limit movement and control behaviour by controlling mobility. This comparison will be problematic when considering that it does not take cultural relativism into account. It is meaningless to consider cultural relativity without looking at both examples in their different cultural structures properly.

There are many cases to show how cultural relativism affects the environment. Edward Hall (1966) has argued that in Britain the relationship between neighbours is perceived as rather limited and living close to someone does not mean that you can necessarily have any relationship with them. In Iran, on the contrary, the unwritten cultural laws about the complex and well established relationships among neighbours are clear and are well reflected in the Persian language. For example these reflections are embodied in the word 'neighbour' (Barati 1996; Barati et. al.1997). According to Rapoport (1977) in Western societies 'neighbourhood' embodies limited relations between inhabitants and their related spaces whereas in Moslem cities, such as Cairo, most relations happen within the neighbourhood.

Following the scientific developments and the industrial revolution in Europe, people started to be familiar with lifestyles and views which called for freedom from the past and from old traditions which were seen as regressive and inadequate in terms of scientific knowledge. Being "modern" or "industrialised" has been taken to mean having or experimenting in order to find scientific answers to all unknowns whether of physics or society, and having no requirement in the logic for traditions, cultural values, and beliefs. According to this world view society was regarded as the sum total of individuals who were seen as deterministic factors within society's development. An individual's worth was not based on intrinsic humanity but rather on the labour he could supply. In this sense a person was seen as nothing more than a robot in a vast economic machine. More abstract ideas about the human being were developed which considered us as constituted of physical and chemical matters. Such a severe reductionism within human studies has led to the development of cultural globalisation within which the modern 'robotic' person has to have the same emotions, ways of thinking, lifestyles, values, and choices all over the world. The author argues that this doctrine and related theories have created many problems in both the natural and social

environments, particularly when applied in architecture, town planning and design worldwide. However the reactions against these doctrines were seen in the emergence of many new concepts and approaches such as "sustainability" which have shown that there is a great significance attached to cultural systems (even in primitive cultures). Many current views within sustainabilty and ecological movements emphasise the role of cultural traditions in maintaining a harmony between people and natural resources through the symbolic values of society (Ujam 1987).

The emergence of General System Theory and Structuralism, and the increasing publication of holistic views and approaches by scientists particularly in physics and chemistry, due to new discoveries in these fields (see Chapter Three) have reinforced the importance of relativism and cultural world views and cosmologies. No doubt these holistic approaches have a similar significance when applied to human and environmental studies within different cultural contexts, an issue which is seen by the author as crucial, particularly for Eastern societies (also see Mathews 1994).

Amos Rapoport in his studies on people-environmental interaction, concentrated on the role of culture. For example he suggested several definitions for 'culture' which it would be useful to briefly introduce here :

- that culture is about a group of people who have a set of values and beliefs which embody ideals that are transmitted to members of the group through enculteration (the transmission of culture).
- these beliefs lead to a world view - the characteristic way of looking at the world,
- that in the case of "design" culture is the "shaping" of the world (Rapoport 1980b: P. 287).

Among the various definitions and explanations which Rapoport referred to, are some basic characteristics that can be reflected in built environment studies and concepts. Culture as a set of values, beliefs and a world view is embodied in people's schemata which are perceptual and cognitive equipment in the human mind responsible for producing images and concepts about objects and relations (Rapoport 1980, 1980b). The term" schemata" will be elaborated later in this chapter due to its significance.

Peoples` life style is, therefore, the immediate outcome of these world views. If one accepts these explanations one has to bear in mind that people, surrounded by a dominant framework of unwritten laws and regulations, have a specific type of choice that leads to a distinctive and significant lifestyle. As a result of these various choices there will be different ways of allocating and using of energy, materials and so on which would not necessarily be similar to other cultures and societies.

Rapoport (1980b) suggests that there are three types of views about culture:
The first view is that cultures or their constitutional elements are seen as people`s attributes in which they maintain their identity and relate themselves to their own environment.
The second is the view of culture as a mechanism to control what human being does.
The third one is to see culture as a kind of structure that makes particulars meaningful. These views have led to three general definitions in the classification of culture.
The first one defines culture "as a way of life typical of a group", the second as "a set of adaptive strategies for survival related to ecology and resources", and finally the third as "a system of symbols, meanings, and cognitive schemata transmitted through symbolic codes."

From these definitions and explanations it is possible to say that culture is knowledge which

is embedded in both the human mind and reflected in the environment through symbols, codes, rituals etc, as well as their mutual interaction. The organisation of the environment is, therefore, the result of the application of sets of rules which reflect differing concepts of environment quality. Design can, therefore, be seen as an attempt to give a form of expression to some image of an ideal environmental quality which is extremely complex and variable and cannot be assumed "*a priori*" but needs to be discovered (Rapoport 1969c, 1977). As a result culture and the built environment can be seen as offering support to each other. Organising the built environment according to the cultural values and norms will sustain the specific cultural life style and activities, and this will lead to the strengthening of the society's knowledge about the environment and its quality. By shaping the environment people are projecting cultural concepts into the environment as symbolic meanings. Such concepts actually form part of the information that new generations will take as basic to the normative structure of a particular society. Therefore, this will reconfirm that the built environment will have certain qualities which will differ for different cultures (Rapoport 1969c, 1977).

One other point here is that in spite of the obvious relationship between culture and the environment there is no certainty that such a clear relationship is considered in today's planning and urban design processes particularly within the context of many traditional societies. Rapoport (1980b) argues that culture typically leads to particular world views which reflect ideals and lead to choices which are difficult to understand and comprehend, particularly in the organisation of the planned environments. Cultural values represent one aspect of world views, while easier to identify and analyse. Yet it is all still rather too complex to link directly to the built environments.

Rapoport has raised a crucial dilemma about the difficulty facing designers and planners in incorporating cultural values into the built environment. The author argues that this is possible through tracing the evolution and meaning of various environmental phenomena within their own context. (See Chapter Five)

One of the significant characteristics of all cultures is the process of evolutionary transition. Culture's attributes, (beliefs, world view, and symbols) are learned and transmitted. This process creates a system of rules and habits which reflect ideas and create the lifestyle, guiding behaviour, roles, and the built form (Rapoport 1977). If we examine history we will find that culture is largely based on what has been experienced and examined many times over during the history and has been proved vital for people`s survival as well as their ideals. Rapoport argues that the peripheral part of the culture is always flexible and continually exchanging information with new situations. The peripheral part of culture, is those recently acquired elements or attributes from outside or those that are not considered as so crucial and significant as others. If there is some vital new attribute visible at the periphery, it will be absorbed by the culture and become a constant part of it. Thus, the functions of cultural attributes must be identified because certain elements (peripheral) are given up not only willingly but eagerly for new elements, while others are retained at the core *ad infinitum* (Rapoport et. al. 1972). The reason for this may be that the survival of society is more important than individual elements of cultural knowledge.

There is often a misunderstanding of the real meaning of 'culture', or, the replacement of culture with its manifestations such as art, or a certain form of behaviour. Sometimes the problem is the objectification of culture within which culture is considered as a 'thing' rather than a 'process'. This happens when a cultural phenomenon, such as a house, is taken out of

its cultural context and is examined as an isolated and independent object, rather than as an integral part of social life.

4.3. The Transmission of Culture

Culture is not something that belongs to the past or present. It is a continual historic structure containing significant amounts of experienced objective and subjective phenomena considered normative in a given society or group of people. This is essentially a question of the timeless relations between people and their environment. The separate components of this relational system are fully understandable only when one sees them as a whole (see Robey 1973). Culture is systematic, changeable and transmittable from one generation to another. In the process of cultural transmission there are three different times: Past, Present, and Future. In this process the vital information for the individual to survive and to try to achieve what is defined by culture as ideal is transmitted from the past generations to the present in order to help them to build the future. Culture as a structure of knowledge, needs to be understood, learned and transferred to future generations.

There are two main systems by which culture is transmitted: verbal and non-verbal, which are intimately linked in the search for agreement over values, norms, rules, beliefs, symbols, and world views. If language can be seen as the most generally accepted symbolic system in the transmission of cultural knowledge, one could argue that the built environment is as important in the embodiment of cultural knowledge because it is involved with almost all dimensions of human life and nature through the artefacts that it produces and the built environment it frames. Rapoport (1977) states that "urban form is a potential device for structuring and modulating information." By this he means that the built environment is the

manifestation of cultural rules and habit systems (e.g. see Rapoport 1981; Tomasello 1993).

Through these symbolic systems, psychological, spiritual and physical attributes of the society are established and transmitted. There should be a strong correlation between the development of language and physical artifacts in a given society otherwise people will be faced with inconsistency and there will be possibilities for misunderstanding, misjudgment, disoriented behaviour and the like .

Cultural properties such as language, behaviour and local artifacts carry codes and messages which are significant in different ways. They connect various parts of the culture to each other as well as into people`s minds. In other words, the process of enculturing is strongly related to the mental systems through which people are connected to the surrounding environment. To then find out how people understand the environment within a particular cultural context, one needs to have a clear perspective about the human mind and its perceptual processes. The latest findings show that people are not passive when dealing with information which they receive from the environment. Therefore, it is very important to know how culture affects human understanding of the environment. Unification of people and their environment is basically related to perception through which "man is all the time integrating the information he is receiving through his different senses and attributing a single integrated meaning to his experience... he fits all the messages together into a single whole." (Robey 1973: P.42).

4. 4. How People Engage with the Environment

Our connection with the environment is possible because we receive different kinds of

messages from our surroundings through our senses. These messages provide us with information that is vital for him to continue to live in a specific natural and social environment.

Until recently it was thought that the relationship between people and their environment started simply with the reception of information from the environment through the different sense organs (attention), then developed in terms of short-term storage (perception), and then, partially, in terms of long term storage. This idea assumed that the human being was a passive information receiver. Later studies have proved that this is incorrect and the establishment of human understanding from the environment is much more complicated. This process or establishment of environmental understanding is not only "substantially affected by the nature of presented stimuli, but it is also affected by the individual`s past experience, expectations, and so on." (Eysenck 1995). There is a massive information currency coming from the environment. Although theoretically we have access to all this information, practically we pick up just some of it (Neisser 1976, Ujam 1987, Eysenck 1995). We all have spent time in a crowded room trying to follow one speaker rather than another, or heard our name spoken above the din of a crowd.

Although there are several senses by which we receive information from the environment the most significant one is sight. The basic visual information available to us consists of simple elements such as edges, lines, and spatially extended objects. Of course, that is not how we perceive the world. What we actually see is an organised world consisting of people and objects. A major issue in visual perception is to account for perceptual segregation, i.e. our ability to work out which parts of the visual information presented to us belong together and thus form separate objects (Eysenck 1995).

What we perceive from the world, including ourselves, are representational types of the information. According to Eysenck (1994) representations can be divided into external representations and internal, mental representations. External representations divide into two broad classes. Those that are 'pictorial' and those based on 'language'. Both types of representation re-present some aspect of the world but they differ in the extent to which they parallel the structure of the world. Internal representations can be divided into analogical and propositional mental representations. All these parts have strong relationships with each other.

Therefore, all information from the external world is obtained from two main sources that can be used in order to perceive the external world in an accurate way. The first contains the information coming from the environment through senses, and the second contains the relevant stored information in the brain. There are also two different information processing systems. One is "bottom-up", and the other "top-down". The former is influenced by the environmental sensory input information, and the latter by the knowledge and experience which have been stored in the brain. The first procedure is called "perception", and the second is called "cognition". Since a normal person spends, if not all, at least most of his life in a specific cultural environment the dual systems of processing information as well as its storage are continually at work. This continual contact with a specific environment, already the representation of a given culture, shapes the mental image of the people about the environment as a whole, and this includes the built environment.

Before elements can be organised and evaluated in the mind, they must be perceived. Perception is thus the most fundamental mechanism linking people and environments. People experience environments through the senses and all data come to us through perception. This

is why people's responses to environments partly depend on where they grew up or come from (Rapoport 1977).

When a stimulus is presented, the basic perceptual process occurs, followed by attention processes that transfer some products of the initial perceptual processing to a short-term memory store. Thereafter, rehearsal serves to maintain information in the short term memory store, and some of that information is transferred to a long-term memory store (Eysenck 1994).

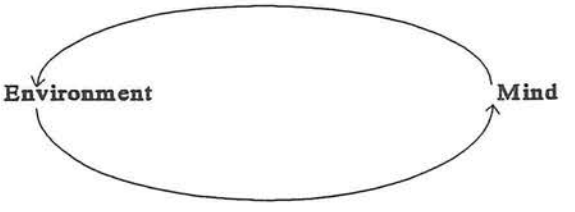
And here there is another significant point. According to cognitive psychologists, stimuli in the external world have no meaning in themselves "because they are merely patterns of light or sound or pressure." (Neisser 1976: P.71). The meaning is applied to them by the perceiver himself after attachment to them. It means that understanding something as a meaningful phenomenon requires a contribution from memory. There are packages of relevant information in the memory system, dedicated to doing this, called "schemata". Therefore, perceivers pick up only what they have schemata for, and ignore the rest (see Neisser 1976; Nasar J. L. 1994). In other words, in relation to the built environment, people see places as they would like them to be, to conform with expectations, and include characteristics in them as needed.

Tulving distinguished between episodic and semantic memory. Episodic memory refers to the storage of specific events or episodes which occurred in a particular place at a particular time while semantic memory contains information about our stock of knowledge about the world (Tulving quoted by Eysenck 1994). Of course these two cannot be segregated because human knowledge is partly related to the past events and experiences. The built environment,

through its symbols, is involved with both these forms of memory and affects each of them. On the one hand, the built environment affects the events by organising and shaping them, and on the other hand, the built environment is shaped by the specific knowledge that already is embedded in peoples`s mind and is transferred from one generation to the other. By shaping the built environment according to the existing knowledge, a considerable part of this knowledge will be stored in the built environment and will organise and affect people`s behaviour as well as their way of thinking.

A person`s perception also involves images, which have been described as the 'point of contact between people and their environment' (Down quoted by Rapoport 1977: P.41). The image is defined as subjective knowledge, all the accumulated, organised knowledge that an individual has about himself and the world (Rapoport 1977). These images are processed environmental information which has been perceived by looking, feeling, listening and reading. These skilful activities occur over time and all of them depend upon preexisting structures, here called schemata, which direct perceptual activity and are themselves modified as it occurs (Neisser 1976).

Figure (4.1)



Source: Neisser

So far it is clear that people collect information from the environment and then interpret it in order to make life sustainable. The point here is that a person's situation with regard to this changes as he goes through life and gains experience. The most basic understanding of the world is formed in childhood through the process of learning. For a child the process of learning in order to perceive the environment is absolutely crucial. Although the actual learning processes are wholly individual what is learned is learned through the youngster's direct interaction with the physical environment and society (Tomasello 1993).

4. 4. 1. Perception

We have developed the idea that the information from the environment is processed in different stages:

* The first stage is to receive information from the environment through different senses;
* The second stage is to process that information;
* The third stage is to store part of the processed information in memory.

According to theory, perception is the most important stage of the whole process whereby the information comes through the sense organs and is processed in order to enable people to recognise the environment and to cope with it. The term perception comes from the Latin "percipere" - to take hold of, to feel, to comprehend (Rapoport 1977). Allport (1955) has suggested in addition that perception is the process of apprehending probable significance. Basic to the process is the fact that the organism has built up certain assumptions about the world in which it lives. These are largely "unconscious" and lead to attaching a significance to cues. There is strong evidence to show that this is not a simple linear process. Perceiving is another cyclic activity that includes anticipation and information pick up (Neisser 1976).

Roth (Quoted by Eysenck 1995) provided a representative definition: the term perception refers to the means by which information acquired from the environment via the sense organs is transformed into experiences of objects, events, sounds, tastes, etc.

It is possible to say that perception is the stage of awareness about the "self" and the "external world" through the different senses. As well as sensing, perception includes the process of evaluation of the environment. The perceptual world in which one lives and develops, leads through direct and taught associations to an associational world embodied in images, which is then used to evaluate and judge environments (Rapoport 1977), i.e. one compares what is sensed with the images and associations held in the memory, and at the same time one initiates preferences, choice, behaviour and decisions. We might refer to this as 'environmental evaluation'. Perception is the way in which people understand, structure and learn the environment and use mental maps to negotiate it.

In the past it was thought that perception is just related to the visual sense whereas now it is agreed that it is not purely visual but multisensory, so that people are subliminally aware of a great range of different environmental stimuli, of extraordinary richness (Rapoport 1977). Perception is also now recognised to be dynamic rather than passive because of its relation to long term memory environments, i.e. schemata, by which it is actively determined (Neisser 1976). So we have the capacity to pick pieces of the information out of the environment, to evaluate and predict it.

Perception obviously depends heavily on the precise external stimuli presented, and thus on bottom-up processing, and remembering depends crucially on stored information, and thus on top-down processing. However, perception is also much affected by the perceiver's

expectations of 'about-to-be-presented' stimuli, and remembering depends far more on the exact nature of the environmental cues provided to facilitate recollection than was thought at one time (Eysenck 1995). This recent area of interest is most significant in relation to this research.

The significant point here is that the perceiver is active not passive. As argued by Beck (1967), to a considerable extent he chooses what he will see, selecting the objects for his attention and perceiving some of their properties over others. Perception also requires him to interpret the physical and social components of his stimulus field. He is thereby concerned with the physical properties of the stimulus field and with personal attributes arising out of the functional and symbolic transactions between men and that field. These transactions further lead to the establishment of group attitudes, beliefs, and values associated with various domains of the environmental field.

Eysenck considers that pattern recognition is a central issue in visual perception. Pattern recognition involves identifying or recognising two-dimensional and three-dimensional stimuli in the environment. However, it can be suggested that patterns need not be related to visual stimuli only. It is clear at a very general level that it involves matching information extracted from stimuli, with information stored within the memory system. When the stimulus information has been compared with the stored information, a decision is made as to which information in the long-term memory provides the best match (Eysenck 1994). Perception is therefore not totally achieved by stimulus input, but occurs as the end-product of the interactive influences of the presented stimuli and internal hypotheses, expectations, and knowledge. In other words, sensory information is used as the basis for making propositional inferences about the presented stimulus.

Another significant group of theories explaining visual perception is those related to "prototypes". Prototype theories claim that similarities among related stimuli play an important role in pattern recognition. More specifically, the prototype theories argue that each stimulus is a member of a class of stimuli, and that it shares key attributes of that class. Pattern recognition involves comparing stimuli to prototypes, which are abstract forms representing the basic or most crucial elements of a set of stimuli. Some theorists prefer the term "schema", an organised package of knowledge, or "structured description", to the term "prototype" (see Eysenck 1994, 1995).

The author believes that these prototype or schemata theories are most relevant to the discussion of people-culture-built environment interrelations. In the vernacular built environment all spaces have similarities, leading to a sense of unity in spite of their diversity, through the use of patterns (see Ardalan et. al. 1973). The mosque, house, madrassa (college), shrine, zoorkhan-e (Iranian ancient gymnasium), carvansarai, and so on, all have some basic similarities in physical symbols, (such as the built forms and treatments of arches, door surfaces, domes etc.), and functions, forms, names, symbolic meanings, etc. These elements that make up the traditional Iranian built environment can be seen as a network of interdependent references and expressions of meaning that is seen to exist on both a synchronic and diachronic plane. Historical evolution or incremental development allows for the environment of this interdependent referencing and meaning to be sustained. The diversity of traditional towns and difference in sizes does not prevent the homogeneous unity between houses. This homogeneity can be seen as a result of the evolution of various elements where, despite continual development, there is no contradiction between old and new.

According to the prototype theory people use information from the patterns presented,

initially in order to construct prototypes that are then stored in long-term memory. This prototype knowledge is then used to classify and identify new stimuli, with recognition being simply a function of the extent to which any given pattern matches the stored prototype (Aspinall 1992; Eysenck 1994). Ultimately this means that every person interprets the world, basically, according to his main information source which is his culture.

Another important theory related to pattern recognition is the "gestalt" theory. Gestaltists in the 1920s argued that pattern recognition is based on the overall shape of a visual stimulus rather than on its component features. The Gestaltists proposed the concept of the "gestalt" (the "whole" or "configuration") as the major unit of analysis within perception, and proclaimed that "the whole is more than the sum of its parts". Therefore, Eysenck suggests that the way in which parts are seen, subwholes emerge and grouping occurs, is not arbitrary or piecemeal but is a process in which characteristics of the whole play a major determining role (Eysenck 1994).

Enculturation is a mental activity within which the individual is involved in endless communication with the environment. The perceiver engages in an act that involves information from the environment as well as his own cognitive mechanisms (Neiser 1976). This cognitive information is itself the result of previous interconnections with the environment. In this process perception is significant because all the other mental activities in terms of interrelation between human and his environment emerges from it. As Neisser emphasises " perception is where cognition and reality meet."

Perception is a matter of discovering what the environment is really like in order to adapt to it. Although perception can be incorrect because it is affected by hypotheses and expectations

(Eysenck 1994) the way the people perceive the environment is one of the main sources of cultural knowledge about the environment including the relativistic meaning of its elements. Homogeneous areas, therefore, reflect the complementary notions of most people with subjectively perceived similar characteristics (Rapoport 1977).

Neisser (1976: P.181) argues that "perceivers do not go beyond the information given, but cultures go beyond the elementary contingencies of nature to make additional information available. The rules of chess do not control the master`s perception; they make perception possible by giving him something to perceive. Such an interpretation suggests that the chess player is neither totally free to look and move where he chooses nor entirely at the mercy of his environment. In other words, however dependent people are on our culture, culture is just as dependent on individuals in order for it to be perceived, followed, and implemented. Therefore, it is possible to say that 'perception' is very closely related to 'cultural understanding'.

4. 4. 2. Cognition

Research has described cognition as that part of the human mind which makes a person able to communicate with the environment, to make it meaningful, and therefore provide the means by which he can act in it. Cognition is concerned with our preferences and the criteria through which we make choices, and it is the activity of knowing: the **acquisition,** organisation, and use of knowledge (Neisser 1976). It is the mental store in which culture is gathered, sifted and held.

The importance of cognition can be argued on the grounds of the view that the human mind works by trying to impose meaning on the world through the use of cognitive taxonomies,

prototypes and categories and that built forms, like other aspects of material culture, are the physical expressions of these prototypes and cognitive domains. Physical elements not only make visible and stable cultural categories, they also have meaning, that is, they can be decoded if and when they match people's knowledge and understanding (Rapoport 1982). Since neither stimuli nor perception can by themselves provide meaning, it follows that it is the perceiver who adds meaning, he does this from his store of experience and knowledge, i.e. his cognitive memory.

Cognition and perception do not work separately or independently. There is a network of relationships between perception and cognition and, therefore, actually, it is very difficult to separate cognitive and perceptual process (Neisser 1967; Rapoport 1977). Perception and cognition are not just operations in the head, but assessment and transactions with the world. These transactions do not merely inform the perceiver, they also transform him. Each of us is created by the cognitive acts in which he engages (Neisser 1976; Nasr 1994). In the past it was believed that cognition would have meant "seeing is believing", later the idea changed into "believing is seeing". In fact neither of these can be correct because they are based on the separation of perception and cognition. The idea now is that the perception of the environment happens where top-bottom and bottom-up systems of information processing meet each other, i.e. seeing and believing come into contact with each other. What you see not only depends on what you look at or hear or read but also on what you know and believe already (Neisser 1976).

Cognition is involved with learning, recording and organising information (Rapoport 1977). The purpose of cognition is to clarify the environment by simplifying it and limiting it into definable parts, to recognise things in the environment in terms of similarities and differences.

But people selects only certain qualities of information rather than gathering it all together. Cognition is therefore also involved in evaluation, preference and choice; cognitive structures prepare the perceiver to accept certain kinds of information rather than others (Rapoport 1977).

The key elements of cognition are cognitive maps and perceptual schemata, which essentially constitute both the framework for and the content of our memory, operating on cognitional and perceptual levels, though on a large scale, accepting information and guiding exploration. The schemata are not merely components of the map, they also direct perception and pick up information in their own right (Neisser 1976). The ways in which individuals characteristically organise their thought processes represent preformed strategies that the individual has developed over long periods of time. This is the notion that there might be a cultural development of these strategies, a social influence on the forming of cognitive maps and the structuring of perceptual schemata. There is moreover a widespread tendency to assume that the cognitive is a definition of the conscious calculational process. Such a perspective is limiting and distorting. Thus it is assumed neither that cognition is necessarily a conscious process nor that it necessarily involves calculation (Kaplan 1987).

Culture has an important role in terms of building the cognitive structure. Culture, including social actions, informs us about ourselves as well as about the world with which we are engaged. It, too, creates cognitive structures that have many other uses (Neisser 1976). In other words, fundamental cultural knowledge by which people interpret and evaluate the world, is embedded in the individual cognitive structure of people. The different foods, for instance, recipes, and their tastes, which are basically related to available resources and supported by the prevailing value system, are part of the cultural knowledge that is stored in

people's cognitive structures and transmitted from the past to the present over a very long time.

The designed environments of particular cultures are settings which a particular group sees as normative and for a particular lifestyle, and are seen as significant and typical and distinguished from others. In the evolution of such cultural settings and lifestyles an order of preference is expressed, a particular set of cognitive schemata or 'templates ' (representing some vision of an ideal) is given, however imperfectly.

The design of the environment involves the organisation of four variables: Space, time, meaning and communication. The organisation of all four needs to be congruent for the environment to work for the people living in it. It is possible to suggest that these variables are organised differently by different cultures on the basis of varying schemata and that conflicts might occur when the schemata of different groups differ and are incongruent (Rapoport 1980).

Cognition is a taxonomic process. The world is made meaningful by naming, classifying and ordering through some conceptual system. Different cultures do this differently, based on meanings and relative importance.

It then follows that there are two major considerations relevant to further discussion: which material phenomena are significant to people in a culture and how they organise these phenomena (Tyler quoted by Rapoport 1977). In other words, to look at what people value highly, what they select, how, and how they organise it, or how they would want to organise it if they had opportunity.

4. 4. 3. Schemata

People's understanding and remembrance of events is shaped by their expectations which are obtained through a series of experiments. The most commonly used construct to account for complex knowledge organisation is the schema. So a "schema" is a structured cluster of concepts; usually, it involves generic knowledge and may be used to represent events, sequences of events, precepts, situations, relations, and even objects (Eysenck 1994)

Although there is a unique reality, knowledge and meaning of the world is varied for different people and different societies, (cf. Feyerabend`s theory 1990) of local relative reality and knowledge. A basic process which underlies identity, and gives meaning to the world generally, is the classification of the world into cognitive domains which are culturally affected. Among these are front/back, men/women, sacred/profane, good/bad. This, in relation to identity, extends to cognitive classification such as us/them. The setting up of the distinctions, the anti-entopic process, seems basic to the ordering of the world. The built environment is an aspect of a physical expression of distinctions among domains acting as a mnemonic. These distinctions can be made in different ways in space, in time, in location, physically, through language and so on (Rapoport 1981).

Jencks C. (1969) argues that the way people can perceive the world depends on the concepts that he already has, (schemata). These schemata are not based on intrinsic information, but are the result of a gradual process of gathering information, gaining experience, and through cultural symbols. The schemata determine perception. People are not passive receptors of outside stimuli, they perceives things according to a former expectation mostly found over time. But the initial necessity before any individual gets involved with the built environment, first, is to understand it. Schematic knowledge about the environment is the main resource

for everyone. Schematic knowledge itself is the consequence of long term experimental interrelation between the individual and the environment and includes information about expectations, values, norms, and so on. As Grynberg (1991: P.371) argues "reference is linked to the subject's knowledge systems, semantic networks, systems of categorisation, habits, and so forth, all of which vary between individuals and between cultures."

The concept of 'schemata' is related to one of the most significant theories about the human mind identifying the people-environment interconnection. Eysenck, referring to Kant's philosophy, proposed the idea of schemata as innate structures for organising our perception of the world (Eysenck 1994). Bartlett (quoted by Eysenck 1994) showed that schemata vary with culture and things are remembered not in order of presentation but how they are assembled into schemata. In other words, schemata help to make the world a more predictable place than it would otherwise be.

Schemata form that portion of the entire perceptual cycle which is internal to the perceiver, modifiable by experience, and somehow specific to what is being perceived. Schemata accept information as it becomes available at sensory surfaces and are changed by that information; they direct movements and exploratory activities that make more information available, by which it is further modified (Neisser 1976). The user constructs cognitive schemata that have a predictive value because schemata are induced or abstracted from many specific experiences (see George Kelly 1955; Eysenck 1994).

According to theory, there are many schemata or packets of organised knowledge that we have stored in our long-term memory. These packets contain collections of knowledge derived from past experience which serve the function of directing perceptual exploration

towards relevant environmental stimuli (see Neisser 1976; Rapoport 1977; Eysenck 1994). If the information obtained from the environment fails to match information in the relevant schema, then there will be confusion. This confusion can be solved either by modification of information in schemata appropriately, or, modification of the environment itself accordingly.

Rapoport (1977) argues that "if something has to be transmitted and learnt in human terms it should have cognitive and schematic basis. There is enough evidence to show that culture is the main resource for human schemata." This explains the relatively sameness of actions and reactions among a group of people who are under the umbrella of the same culture and why in a cultural context the entire systems of behaviour that are made up of hundreds of thousands of details are passed from generation to generation. Nobody can give the rules for what is happening. "Only when these rules are broken do we realise they exist." (Hall 1973: P. 93).

A schema is like a format in a computer program. It accepts certain bits of information and ignores others. It also functions as a plan for finding out about objects and events, for obtaining more information. The schema is not only the plan but also the executor of the plan. It is a pattern of action and also a pattern for action. New information is related to old through the way it fits into schemata and this predisposes the organism to act in some ways rather than others. In this way schemata can affect the known environment and the surrounding environment (Rapoport 1977). Schemata process top-down, and can be modified by bottom-up processing, as represented by the sampling of available environmental information, but can also influence the course of the information processing involved in perception (see Eysenck 1994, 1995).

We can argue that there are two different steps in the process of establishment of the schemata. The first step is when a human infant starts to collect information to build his schemata. According to Neisser (1976) a child should have to look at a specific event attentively enough times to develop the schemata that the problem demands. The second step is when the schemata are already built and people see the universe according to their knowledge structure including their belief systems. Here people see what they believe. In other word, they tend to perceive the environment as they expect to perceive it. Of course it does not mean that people are completely limited in terms of past experiences but it does mean that they are not completely open to new information of new situations. In other words, there is a huge complicated network of interrelated knowledge behind every human-environment interaction, which depends on the cultural background of the person involved.

Schemata also free up the cognitive system from having to analyse all aspects of a visual scene at the level of perception. When viewing an everyday scene, such as a sitting room, for example, most people have clear expectations about what objects they are likely to see (Eysenck 1994). Information picked up is systematically related to existing schemata, and in particular to a cognitive map or orienting schemata of the nearby environment. The advantage of this is that it generalises easily to natural, continuous viewing, in which the perceiver himself actively seeks information over a period of time (Neisser 1976). Each schema is therefore a flexible matrix with fixed rules which allows us to perceive each unique situation with a fair amount of flexibility (Jencks 1969). Even so, sometimes, as Rapoport (1977) argues, perceptual information that cannot be fitted into the schema may be rejected.

The relationship between culture and schemata is tied into the whole cultural structure. So although the details inside a culture's structure may differ from one person to the other, or

be forgotten in one way or another, the overall knowledge is much too strong to be forgotten or ignored. Neisser (1976) argues that forgetting tends to affect minor details of embedded schemata rather than the overall embedding structure. The total meaning of a sentence or a story survives far longer than the particular words that established and expressed it. The structured knowledge that identifies fundamental interactions between people and their environment, their relationship with nature, ideology, and the society, for instance, cannot be changed as quickly as their ideas about, say, clothes fashions or car technology, because they are the basis of people-environment unity.

Culture therefore is to be found both in people's minds and their surroundings. According to George Kelly's theory about the structure of the mind as well as the theory of perception, cognition and schemata, individuals actively interpret the external world based on pre-structured images and knowledge. Although it can be claimed that some of this knowledge is shared among almost all people all over the world, as stereotype images, each person's perception is for the most part affected by local culture and its verbal and non verbal symbols, producing differentiations and bonds of similarity between people in various societies and environments.

Equally, it can be said that the external environment in different ways is already "culturised" in that it holds and manifests cultural verbal and non verbal symbols. When children learn, they are learning to perceive and recognise their particular environment through meanings and symbols, they are necessarily dealing with a culturally affected environment. Their mental structures, i.e. schemata as they develop, therefore, are strongly influenced by the local culture and its related environment.

A final point to be made relating to the findings of the research in Tehran concerns the meeting of elements of different societies. Culture, above all, is the knowledge of living in any given society. Cultures are different because of their content and their structure and people need to be aware of their cultural perception "glasses" when looking at another culture - its symbols, people and structure. According to Rapoport (1980b: P.289) "we conceptualised the built environment as encoding cognitive schemata which then need to be decoded to produce appropriate and congruent schemata in the minds of users." If this act of encoding and decoding is not appropriate, there will be a result of confusion and incongruity because what is perceived will not fit into the cognitive maps of the perceivers.

Chapter Five

Reading and Understanding the Environment through Symbolic Systems

5.1. Introduction

So far we have discussed the ways recent approaches have dealt with the human environment and the problems which have been raised by these approaches. Then the importance of culture and the cultural approach to understanding the environment was discussed. In this chapter the target is to establish how symbols and symbolic systems enable people to comprehend and communicate with the environment. In Chapter Four it was made clear that to understand what is happening in one`s surroundings one uses two different information processing systems: Top-down and Bottom-up systems. The important point here is that by using these information processing systems people actually develop an imaginative picture of reality as it is perceived. Rapoport (1970) believes that people have an essential and unique universe of symbols and meanings of our own and that our lives are largely and inevitably under the dominance of these symbols particularly in relation to the collective actions we share with the community and the establishment of social order (see also Alvesson 1991).

For people, not only the reality of the outside world, but also its symbolic meaning is ultimately significant. In other words there are relative symbolic 'realities' which are contained in specific frameworks that are called culture. People through many thousands of years of interaction with the world, have learned that every single phenomenon in the environment, significantly, has to have a symbolic meaning that represents its relative existence. This

relative symbolic meaning enables us to cope with our environment and to develop it. In other words symbols, which could be seen as a kind of human knowledge, do not depend on individuals only but also on the whole society. According to George Kelly, this symbolic world combines meanings that can be best understood when contrasting two-pole forms which are to be found in each meaning such as for example sacred/profane, good/bad, black/white (Kelly 1955). Of course the reality of symbolic understanding is not so simple and between the poles of each dual concept could exist degrees of ranking. For example we cannot say that something in the environment is either absolutely good or bad. It must be somewhere in between. These meanings and their manifestations in the environment are strongly influenced by verbal and nonverbal symbols that already exist in the social context. For example good food / bad food, good behaviour / bad behaviour, good residential space / bad residential space are already defined in the society and are supported by other symbols and concepts in a very complicated network.

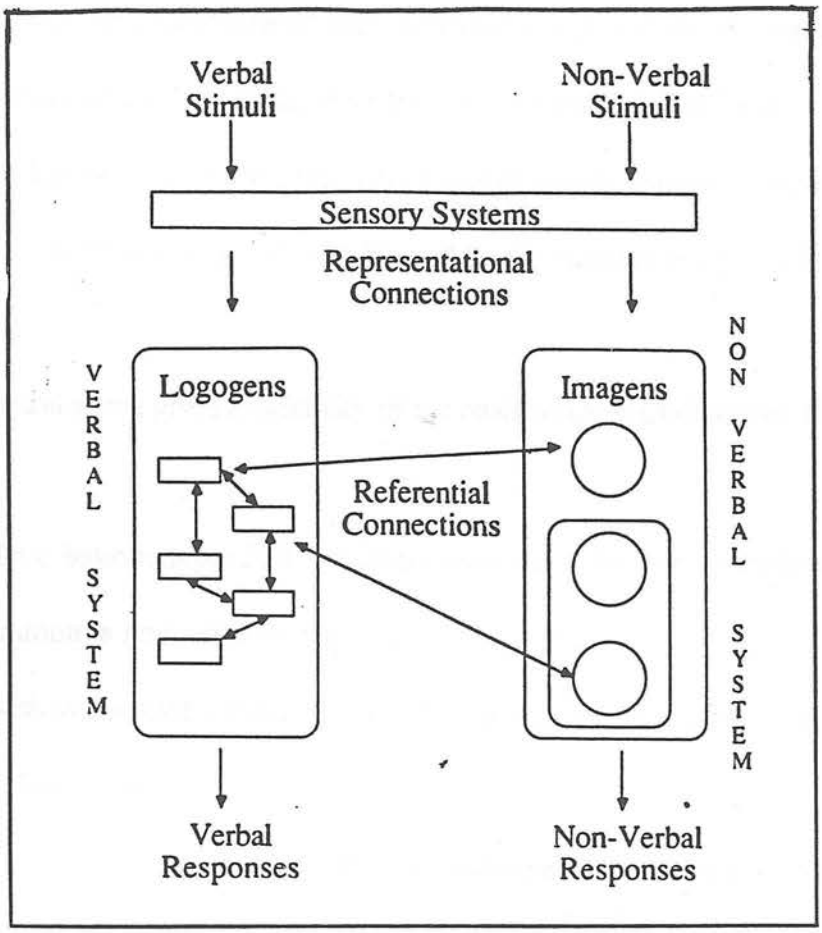
Consequently, the way people see and interpret various elements in the environment depends upon the symbolic meaning which has already been given to them through a prior social agreement. This social sharing and agreement is the one of the most important bases for communicating with other members of the community as well as with the environment itself. The reason is that communication about a subject needs mutual agreement about the meaning between the sender of the message and the receiver. When a sender and a receiver can come to a consensus on validating an interpretation, then communications can be successful (Ruesch et. al. 1964). Therefore there should be common accepted criterion in the built environment, as well as in the human mind and in the symbols in order to make communication possible. The less agreement and unity there is between these three elements the less successful the communications will be.

Following on from the discussions in the previous chapters, this chapter will examine the possibility of this mutual communication. The Iranian culture is used here as a case study, in order to show the extent to which it is vital for a person to have symbolic meanings both in his mind as well as in his environment which would enable him to communicate and fulfil his role in the creation of the environment where he lives. It is also important to know the extent of damage which could be done to both people and the environment if this communication did not take place.

5.2. Symbolic Systems and Environmental Understanding

People, when thinking or talking about the world do not have its physical elements in their heads. What they have in mind is the symbolic meaning of those elements, whatever they are. This study has argued that the importance and influence of the symbols and symbolic systems have been rarely considered by the "positivist" and " rationalist" approaches and theories applied in environmental development (Alvesson 1991). These symbolic representations of the world, can be classified in two ways: nonverbal and verbal (Paivio quoted by Eysenck et. al. 1994, 1995). According to Paivio`s Dual - Coding Theory, the nonverbal system deals with "image-based" information, whereas the verbal system is responsible for the processing of linguistic information. There are also sub-systems (i.e. vision, audition, haptic, taste, and smell) within the two systems. Figure (5.1) shows the structure of symbolic systems according to the Dual-Coding Theory.

Figure (5.1) - Diagram of Dual Coding



The Relationship Between Symbolic and Sensorimotor Systems and Examples of the Types of Information Represented in Each Sub-system in Paivio's Dual-coding Theory

	Symbolic systems	
Sensorimotor	*Verbal*	*Non-verbal*
Visual	Visual words	Visual objects
Auditory	Auditory words	Environmental sounds
Haptic	Writing patterns	"Feel" of objects
Taste	—	Taste memories
Smell	—	Olfactory memories

Source: Eysenck (1994)

As the diagram shows, these systems and sub-systems are not independent or disassociated although the complexities of their interrelations are not still completely known. But in terms of language and linguistics, there have so far been only very poor attempts to consider their significance in establishing the connections of people with environment. However, the verbal and nonverbal coding relationship will be the main subject to be discussed in this chapter.

The following gives a summary of the basis of Dual-Coding (ref: Eysenck 1994, 1995):

* Two basic independent but interconnected coding or symbolic systems underlie human cognition: a nonverbal system and verbal system.

* Both systems are specialised for encoding, organising, storing, and retrieving distinct types of information.

* The nonverbal (or imagery) system specialises in processing nonverbal objects and events (i.e. processing spatial and synchronous information) and thus enters into tasks like the analysis of scenes and the generation of mental images.

* The verbal system specialises in dealing with linguistic information and is largely implicated in the processing of language; because of the serial nature of language, it is specialised in sequential processing.

* Both systems are further sub-divided into several sensorimotor sub-systems (visual, auditory, and haptic).

* Both systems have basic representational units: logogens for the verbal system and imagens for the nonverbal system, that come in modality-specific versions in each of the sensorimotor sub-systems.

* The two symbolic systems are interconnected by referential links between logogens and imagens.

According to this theory, there should be a reference for each symbol in every part of this dual system (logogens and imagens). Cognitively it is possible to say that the verbal and nonverbal representations of any phenomenon make a unique imaginative entity in the mind. So when we see, or think about, a car, for instance, the meaning of 'car', including its name 'car', will be there alongside its prototypical shape.

A simple definition of the symbol is something that, conventionally, by association or even accidentally, stands for something else (Burckhardt 1967; Noble et. al. 1991). One significant point is that symbols are the production of human imagination. They have the property of being arbitrarily related to their referents (Noble et. al. 1991). They enable people to make abstractions, prototypes, packages of vital information about the different things in the environment in an absolutely economic way. Grynberg (1991) argues that formal models, logical ideas, and scientific activities only constitute a type of symbolic system and can not represent the whole structure and field of human actions. For example, instead of thinking about how significant water is, a society comes to an agreement to symbolically consider water as a sacred entity or a taboo.

5.3. The Nature of Symbols

According to Alvesson (1991) symbols can be defined as objects, acts, concepts, or linguistic formations that stand ambiguously for a multiplicity of disparate meanings, evoking sentiments and emotions and impelling men to action. Langer quoted by Ardalan (1973) defines the symbol as any apparatus by which we are enabled to make an abstraction. Nasr, S. H. (quoted in Ardalan et. al. 1973: P.132) makes a distinction between symbols and signs

and argues that "the nature of the symbol differs profoundly from that of allegory. A symbol is a 'reflection' in a lower order of existence of a reality belonging to a higher ontological status, a 'reflection' which in essence is unified to that which is symbolised, while allegory is a more or less 'artificial figuration' by an individual having no universal existence of its own". In other words, it is possible to say that: "Allegory is a rational operation, implying no transition either to a new plane of being or to a new depth of consciousness, of what might very well be known in a different way. The symbol announces a plane of consciousness distinct from that of rational evidence; it is the 'cipher' of a mystery, the only means of saying something that cannot be apprehended in any other way" (Henry Corbin quoted in Ardalan et. al. 1973: P.132). Geertz has explained symbols as "any object, act, event, quality or relation that serves as a vehicle for a conception" (Geertz quoted in Rapoport 1982: P.47). Kepes has argued that a symbol is the result of a cognitive process whereby an object acquires a connotation beyond its instrumental use. An "object" may be an environment or a person as well as a material artifact (Kepes quoted in Lang 1988: P.12).

As a result, the function of a symbol is to give communicable expression, verbal or nonverbal, to socio-cultural concepts and knowledge. Symbols work on an unconscious level to keep people aware of their values and make the daily life of individuals, as well as the society as a whole, possible through the creation of a system. A symbolic system includes the action of shared acceptance by people about the symbols, and the symbols themselves, and thus is fundamental for the society`s sustainability. In other words we can consider the shared sets of symbols as part of a social soul that makes the continuity of the society possible even when individuals join or leave the group. Symbols as Rapoport (1970) has stated help people to understand the world and to form it into a meaningful cultural pattern which is given physical embodiment through built form as well as being expressed through written records, graphic

symbols, songs, myth, and many other structures. We can add to these examples some other significant aspects such as beliefs, philosophical systems, and scientific knowledge (e.g. Grynberg 1991).

Symbols have a content of primarily cognitive, emotional, or action-inspiring character (e.g. Alvesson 1991; Grynberg 1991). Symbolising may function in giving meaning to the external world as well as strengthening peoples awareness of themselves. In other words, symbolising the outside world influences the way people perceive it or interpret it. On the other hand, the symbols that people choose to have around them may reflect their perceptions of who they are or may reflect their perception of who they aspire to be (Lang 1988). Therefore there is a tendency in society to symbolise everything and then react to the symbols as if they were the environmental stimuli (e.g. Rapoport et. al. 1972; Rapoport 1973). Mann (1993 P.15) also has argued that "in our progression from caves to modern buildings, the symbolism of the early integration with the cosmos has been central, and still activates the deepest essence within us, the core of our psyche." Of course we do not do this for fun but as a necessity of survival, in the process of integration with the environment.

Rapoport argues that almost everything might function as a symbol so long as it signifies something wider or different from itself, and has meaning for a person or a group of people. For example meaning is often expressed through signs, materials, colours, shapes, sizes, furnishings or landscaping, and similarly meaning is often expressed through the organisation of semi-fixed elements such as nonverbal behaviour (Rapoport 1980b; Alvesson 1991). People, therefore, live in a world of symbols and symbolic meanings. These meanings are imposed on reality by people themselves. Now the question is 'why ?' and 'how ?'.

People may unconsciously like to live with others who belong to the same culture, to share with them their values, ideas and norms and also to understand and respond to the same symbols (Rapoport 1977). The point, though, is that society is not just a collection of isolated people in a specific place. It is a perceptual symbolic concept within which integration in the environment and integration with the environment is supposed to be achieved in a form of unity and, as a result, the continuation of human cultural life is made possible.

The systems of symbols e.g. beliefs, values, myths, etc. extend people-environment relations beyond the physical. For example when an Iranian sees a wooden door in his traditional house, his perception is not the same as that of a foreigner, because his perception not only includes information about concepts like door/window, wood/iron but also symbols related to identity, religion, history, man-woman relations, concept of inside-outside, symbolic meanings and functions of a house, and so on. So it is possible to say that symbolic concepts, involving cognitive activities, are important sources for cultural knowledge and cultural communication. It means that people, to live in this world, cannot only depend on objective information about the surroundings. The associated meanings of a door, for example, together create a complex network of interconnected information, so that what is understood as a house door in one society might be dramatically different from those of another society, and might determine quite different expected norms and behaviour. This is how people give meaning to the environment, and see the world in different ways. Similarly this is the way a designer should define his task. Here it might be helpful to remind the reader that the intention behind these discussions has been always to transpose the implications of the various analytic thoughts of the research to the realms of architecture and environmental development processes. It is very likely that designers would be expected to relate these ideas to their work and therefore the author's task will avoid the imposition of his own design

solutions. These would benefit the personal interpretations of the designer and decision makers and maintain opportunities for dynamic and evolutionary textual design processes.

It is said that the higher levels of symbolic meanings are more determined by the culture than the concrete objective and physical details (Rapoport 1970c; 1973). This seems to hold true since numerous fundamental symbols have lived with us for thousand of years although there have been some vast changes in human life. It is important to state here that both communal and individual symbols are equally significant. The existence of diversified symbols within the one culture achieves diversity within unity, a phenomenon which is vital for the evolution of culture.

This leads to the discussion of two important points:

1. Every society has its own symbols that are not necessarily understood or accepted in other societies. This differentiation in symbolising the world might have several causes within the natural or man-made environment.

2. In human societies symbolic meanings that represent the society as a whole are the more dominant even if some individualistic symbols have particular significance.

Holistic views of cultures and their symbolic values are more clearly observable or evident in regions with extreme environmental and climatic conditions, a phenomenon which could be attributed to necessities for survival. One would argue that the basic problem in such regions is shortage of resources and the necessity for more adaptation systems. The longing for security and survival forces groups of people into more organised social communities. An isolated living unit is not sustainable in this context. For example a compact and dense pattern

of settlements is the result of an adaptation which itself is an inevitable form to cope with hot - dry conditions. This sort of a relationship in this kind of physical environment should certainly be embedded in the socio-cultural values of that society otherwise the social life cannot be sustained. In these kinds of societies the positioning of symbols is significant because ignoring them puts the society into a dangerous position. For instance if respect of nature and natural resources, e.g. water, or greenery, is given fundamental symbolic meaning in this society, there is less likelihood of these meanings being ignored, which is important given that ignoring these meanings will directly affect the environment including the individuals who perpetrated the ignorance. One of the main functions of symbolic systems is to transform the biological, social, and cultural needs of a society into ideals, values, norms, or goal-oriented objects. This shows again how important different symbols are. Of course it does not mean that all symbols stand forever. It is inherent in the nature of culture that its structure will allow for internal processes of evolutionary changes to produce new symbols which will become part of cultural communication (see Chapter Three).

Symbols also have a significant part in human learning. Early learning stages in children begin with imitative actions dominated by two subject-object directed actions and the use of communicative symbols (Tomasello et. al. 1993). The child, therefore, never faces a strange world. On the contrary, from the very beginning, he or she is part of a world which is already organised at material and symbolic levels (Grynberg 1991). Symbols continue to affect people`s formal and informal learning all through his life. In other words, symbols have a strong role in connecting our intelligence into the world. A child, for instance, before having any idea about physio-chemical characteristics of the surrounding elements, learns their symbolic meaning. This kind of knowledge will dominate a person's thinking throughout their life. The main point here is that the built environment as a language includes information

which shows what kind of interpretation a given society brings into itself from the universe and why. When the built environment is not relevant to the culture or that society`s world view, new generations are actually deprived of one of the most significant sources of vital information and communication.

Symbols and symbolic systems determine how we understand the world and how we link to it. Societies can have vastly different interpretations of a similar phenomenon leading to completely different emotions and actions. Symbolic meanings act as a background for the unification of people with the environment. As a result, people have a spiritual relationship with the environment and its resources. They live with each other and interchange with each other so that people can never be simple consumers of the resources in the environment. For example, killing an animal is a religious ritual in Iran. There used to be no problem in slaughtering animals in front of people, especially during ceremonies. Superficial consideration of this phenomenon may lead to condemning it. If we keep our bias away from the issue for a moment and look at it deeply we can find a very philosophical and ecological reason for this ritual. Of course, as with other cultural facts, it can be best understood in its cultural context. In Islam, natural resources such as vegetables and animals, are considered as God`s gifts. Shortage of resources in arid regions like Iran, on the other hand, has made people culturally conscious about the way these resources are used. In Islam, excessive consuming of the resources, such as eating more than is needed has always been a negative and unaccepted attitude, out of necessity. So if the meat of a sheep or a cow is considered symbolically as a sacred gift of God, then to waste it is a sin which would be prohibited. This, indeed, is cultural symbolisation of available resources. In addition, experiencing the slaughter of animals will increase people's consciousness about the value of this resource and will communicate this message to other generations through this ritual.

Mass consumption following mass production is a controversial attitude in traditional societies and could be considered as against their culture. The changes in the killing of animals from symbolic ritual to mechanised methods has helped the move to a passive conception of the environment within which misuse and over use became phenomenal. This story may well apply to many other aspects of any culture. All this should lead us to reconsider our current attitudes to the various aspects of the environment as a mere aggregation of some kind of meaningless commodities which are only for consumption. The advantage of having symbolic values increases the sense of unity with the environment and provides a basis for an equilibrium between people and environment. The modern Iranian house is a good example of the fragmentation of people and the environment (see Chapter One). The oversimplification of the value of the house as a significant cultural symbol, has reduced it to a mere market commodity useful only for physical needs such as eating, sleeping and so on.

All this suggests that people, their society and their environment, should form one symbolic entity. The overthrow by people of the symbolic meaning of their dwellings reduces their affinity to their culture and converts them to passive and dissociated dwellers. It also brings serious damage to the way the indigenous house embodies the ritual and way of living of people.

Oversimplified and reductionist approaches, particularly those applied in countries other than those of their origins, brought a kind of symbolism which bears no connection to the evolutionary cultural processes of those countries. The symbolism of modernism is perceived as a kind of intellectual abstraction which cannot be located beyond the visual language of the built environment. Since these symbols are universal only in their denial of indigenous

environmental diversity, there was no opportunity for local people to make reference to their own cultural values or traditional knowledge, nor they were able to participate. In Iran for instance this situation led to a kind of decision-making and implementation process within which local people were totally excluded (see Chapter Two). In such a situation one may argue that the people-environment interrelation could be damaged dramatically (see Chapter One). Because, as has been discussed in this research, in order for people to communicate with the environment they should have direct integration with the environment and have shared meanings, achieved through symbols and associations. In other words, mind, built form, and meanings should represent each other in a holistic context. Global symbolism, which ignores the locality and relativity of symbols, has failed to create this wholeness and has led to a fragmentation in people-environment relationships.

5.5. Symbols and Meanings in the Built Environment

5.5.1. Nonverbal Symbols

The role of symbols is to communicate the socio-cultural system and to give cues for appropriate behaviour. As we have seen, environmental symbols are increasingly important even though they are not used as consistently as in the past. If one cannot communicate, one cannot relate and when differences among people become so great that symbols no longer have any common meaning then people begin to search for new symbols. The symbols not only relate people to people, people to things, and things to things, but also create a subjective unification of all of these elements. Symbols in the built environment are also important in terms of establishing and reaffirming social identity so that groups not only select different habitats but create them. A significant role of such environmental symbols is

to locate people in social space (Rapoport 1977).

One of the significant views within the area of people-environment relationships is that which sees the subjective environment as an influence on behaviour. In other words, it is the environment in the mind that is important and which influences behaviour (Rapoport 1980). Since the built environment is the objective manifestation of symbols and subjective values, it is located in the mind in the form of meanings and associations. If one accepts that the environment is a form of communication there should be a similarity of processes between the structure of the human mind and the structure of the environment and its contents i.e. the way they are organised. There also must be some congruence between the logical structures of the symbols and the objects of symbolisation. Consequently, the resulting space organisation must be logically related to what is being symbolised no matter how difficult this correspondence between built form and culture may be.

When boundaries are defined as cognitive constructs they become barriers leading to qualities of avoidance, special use and so on, all indicated through symbols (Rapoport 1977). A symbol, to be recognisable as such, must be something that evidently conveys a meaning or meanings. Lang J. (1988: P.16) argues that "convention and conventionalised behaviour are in the nature of artifacts which become symbols with arbitrarily defined meaning." On the other hand Rapoport (1970) suggests that the symbols that people choose to have around them may reflect their perceptions of who they are or who they aspire to be or may simply reflect a rejection of the past. If one aspires to be a member of a group, then the symbols associated with that group become particularly important. It should be noted, however, that the perception of important symbols associated with a group differs between those outside the group and those who are members. There is therefore a very close link between symbols

and matters of identity.

When we consider the built environment, the identity of cities can be seen to depend on symbolisation and the communication that it affords to both residents and its visitors. Cities can be seen as complex symbolic message systems, although there may be disagreement about the messages i.e., the message may not be understood (Kepes, Brown, and Carr quoted by Rapoport 1977).

The building up of these message systems are the result of selection-combination processes in which certain concepts or features will be incorporated within symbolic systems. In the case of many traditional environments, this combination of selected aspects will produce the identity of the city in an evolutionary process. Because selection and combination principles take place locally from available resources as well as shared cultural values, the people, themselves, can be seen responsible for the creation and development of the environmental language which they can use to understand and negotiate with the environment.

All these symbolic meanings and ideas create a specific imagination of the spatial quality and configurations of the environment. This image might also lead to particular behaviour, something which is clearly observable in the traditional Iranian buildings and urban fabrics. The pattern of the built environment, consequently, has to have some basic criteria which are needed to respond to the pattern of thought and related behaviour otherwise disorientation may emerge. In such a situation one may argue that either people will be forced to misuse the built environment which they live or that the built environment itself will create an undesirable shift in people's value systems and cultural communication. The environment can, therefore, be conceptualised as a set of settings for different forms and levels of

communication (Rapoport 1977). So here understanding and communication between people and environment is not an artistic matter. It is actually a matter of sustaining survival; what is communicated as good and accepted is an indication of what is ecologically vital and necessary at a very basic level, especially within the holistic framework of the indigenous cultures.

The built environment generally consists of different materials which come in the form of patterns, lines, and volumes, which can be observed in almost every context. These are themselves meaningless as physical entities or features. What makes the environment and its features meaningful is the selection and combination of materials in certain forms and patterns. So what contributes to the diversity of environments all over the world are the local meanings which every society gives to material and physical features which are organised in a particular way. The thoughts that are associated with each of these environments also vary from group to group (Lang 1988). Some aspects of 'fixed-feature space', for example, are not visible until one observes human behaviour (Hall 1966). In the same manner as language, in any culture every unit can be identified only within its interrelational network with the whole, (including the built environment).

It is implicitly accepted that there is a link between behaviour and built form in two ways:
1) Firstly, in the sense that an understanding of the behaviour patterns, including desires, motivations, and feelings, is essential to the understanding of built form, since built form is the physical embodiment of these patterns;
2) And secondly, in the sense that forms, once built, affect behaviour and the way of life.

Each of these two aspects constitutes a vast topic in itself, and both are of great interest to

architecture and all those concerned with human habitat. The question, in effect, is concerned with how changes in culture, expressed in behaviour, relate to changes in the environment, as shown by physical form (Rapoport 1970). The other question is how changes in the environment are determined, and by whom. If changes are not the natural continuation of an existing situation it means that there must be a problem in the built form. In other words, there is contradiction between these changes and culture (see Chapter Two).

If we accept that the environment is a set of relationships between people and people, people and objects, and objects and objects (Rapoport 1980), then obviously these relationships can not be seen as mere physical configurations. What makes the possibility for these phenomena to be engaged in an actual relationship is shared symbolic meaning. Lang (1988) states that attitudes towards specific built environments arise from the attribution of a value to a belief. Rapoport (1980) argues, similarly, that the meaning of space depends upon the cognitive schemata within their culture; so do the ways in which space is organised. These two statements indicate that beliefs are strongly based in the symbolic environment and that values emerge to bridge beliefs and the human mind. This is the cultural process which leads to the establishment of cognitive schemata by which one communicates with the environment.

In indigenous or traditional urban textures individual elements are united within the whole, which is the expression of the common and shared values where each element has a strong role not only in the physical structure of the environment but also in the socio-cultural interpretation. One of the most powerful elements confirming this is the 'House' which has several key roles in social structures and relationships. In Iran, for instance, the house has very significant role in facilitating social and religious rituals and ceremonies which are shared by many individuals within the community. Traditional houses are usually the setting for

wedding parties and funeral ceremonies, along with many other events. Preparations for the wedding ceremony, for instance, start months beforehand. Lots of relatives, friends and neighbours participate in both informal (preparation activities) and formal (celebration activities) parts of the ceremony. There are interchanges of social roles and ordinary people have the chance to take leadership roles in the management of different activities, preparing meals, decorations, etc. Youths also see the event as a scene where they can present themselves and their abilities. One may find all these events as a ground for the confirmation and continuation of social sustainability by highlighting the cultural values and social relations. These kinds of events, which fit the structures and patterns of traditional houses, are performances of socio-cultural potentials that cannot be expressed in daily life.

One can find a wealth of symbolic behaviour in these kinds of ceremonies in each region in Iran. Unfortunately the modernisation programmes applied to the new settlements and urban developments have failed to see this network of continual interrelations and instead have, superficially, picked out some of the ideas, and in removing them from the fullness of their context thereby limited the cultural and social environment and reduced its symbolic meaning. For example, the new idea of building halls for wedding ceremonies, without considering their contextual aspect, has produced new forms of celebration which come down to sharing a meal, while this originally would have been only part of the whole process. This kind of replacement of the dynamic social and symbolic processes with a single event has reduced the many other associated events which are mostly and traditionally designed to strengthen cultural ties and social coherence. So we can clearly see how the active participation of people in a process of creation and unification with time and space has changed dramatically into an absolutely passive attendance at a pre-made dinner! This also shows the extent of ignorance, by those who make decisions, of the value and significance of maintaining these

cultural activities and the various possibilities they offer to the community in general.

As a result, one can conclude that these processes of cultural behaviour along with the buildings typologies that encompass them are actually symbols which make concrete unique abstract meanings for diversified phenomena. In other words, what is thought of, what is acted upon and what is built together create a single unique entity because the origin of all these is the same, that is the embodiment of the initial meaning. Lang (1988: P.24) argues that spontaneous symbolic meanings are said to arise from a directly perceivable analogy between the visual structure of an object, such as buildings and a corresponding generic characteristic of shapes, such as "height or depth, openness or closure, out going or withdrawal". This might be true in part, but there is strong evidence for the existence of symbolic meanings that are not related only to objective visible entities or that are not grounded in the perception of an individual. Meanings exist no matter whether one understands or indeed is prepared to acknowledge them or not. Symbolic functioning is no longer regarded only in terms of its various products, but also as a dynamic developmental process that occurs in the interaction of the individual and the social and physical environment (Grynberg 1991). These relationships can be conceptualised in different ways (Rapoport 1980). It seems, therefore, that people need symbols rather than symbols need people. To create a sustainable environment, (i.e. a secure environment) requires a strong working relation between symbols, people and the environment instead of seeking help from "planning laws and regulations".

In many societies most daily life is still regarded as part of the ceremonial and ritual traditions and ways of living and vice versa. This ritualistic way of life gives a specific, symbolic meaning to the elements and spaces in the environment, hence the prevalence of the subject

of ritual in people-environment studies. This ritualisation within space leads usually to a complex conception of a place and could also give it a multi-functional role, some of which are obvious and visible functions, while others are not. The meaning of space, therefore, has an actual and possible symbolic sense. For example, the house in Iran not only is the place of daily life, but potentially it is a religiously sacred ceremonial space. Consequently, a process of environmental symbolisation embodied in ritual carries on within the vernacular environment. Therefore, both rituals and spaces act to keep each other alive. Of course the relative criticality of various elements for the well-being and survival of any group will also vary depending on the cultural competence and degree of environmental docility of the group and their reliance on environmental symbols (Rapoport 1977). This environmental docility in the past used to be on a very high level, whereas, by the spreading of global industrialised built forms, accompanied by centrally control, there is a very low level of opportunity of environmental docility now even for private spaces like houses (see also Chapter Two). When, according to Wallon (quoted by Grynberg 1991) rituals and myths constitute the primary operative structures in any society, they should be considered as the framework for the evolution of all these psychological tools, and the means by which individuals control space and time and categorise and count objects. Analysis of rites and myths, then, leads to a full appreciation of the diversity of forms that 'natural' representation can take when proceeding from 'concrete' experience to the concepts of causality and symbolic representation, or when establishing relations between what is reality and what is mind.

The representation of possible symbolic rituals and ceremonies, when they become actual events, creates a process of reintegration that is needed particularly within urban areas where daily living does not have any particular ritualistic significance. This is not to say that rituals are totally absent from these areas, but that there is a split between the elements of

community, family, symbolic meanings and religious existence. Therefore, the reintegrative capacities of vernacular rituals and ceremonies create a robust and sustainable sense of community that would probably deal with outside pressure better than when in a fragmented state. Symbolisation of rituals is a very pragmatic tool which integrates not only people but also spaces. The process of ritual also helps the society to keep its shared history, and cosmological beliefs in order to strengthen its sense of unity. These ritualistic processes need specific spaces and times for them to take place. The predetermined built environment is supposed to create these opportunities or at least allow for them. When there is a contradiction between the built environment and the socio-cultural environment, few if any of these processes will find the opportunity to develop. An example of this situation is the symbolism associated with technology at present. In order for the imported technology to be seen as symbolic, it should be assimilated by people who share a network of symbols and meanings inherent in the specific culture in question. If these symbols are not matched with the local meanings, verbally and nonverbally, it may leave consequences on the social coherence that would not be the case in the technology's country of origin.

Environmental congruence and symbolic meanings are two faces of one coin. When the environment is congruent, it means that the symbolic systems are working properly to harmonise people`s cognitive perception of the built environment. Shayegan, D. discussing Iranian traditional architecture in terms of its symbolism argues that "the fundamental form of Persian architecture is the division of space into four parts, the most perfect structure of which already appears in the Parthian and Sassanian architecture of the '*Chahar-taq*'. This is a dome set on four pillars that covered the fire altar in the Zoroastrian temple. This arrangement is, so to speak, the ecological microcosm of space, a dynamic centre which founded the "place" of any building." It is also the same primary structure, for instance, in the

concentric drawings on certain Sassanian dishes. We find it in miniatures, too, as well as in gardens, in carpets, and in the Iranian mosques with a central yard and four *Iwans*." (Shayegan in Mardaga 1986: P. 10-11; also see Pope 1939: P.1432).

The number four has been significant in Iranian culture in several ways. It was believed that there are four physical natures such as hot, cold, dry and moist; or four elements which are air, water, earth, and fire. There were also four humours: blood, phlegm, yellow bile and black bile; four seasons; four cardinal directions; four winds and so on (see Ardalan et. al. 1973). It is noted also that the majority of the Iranian walled towns used to have four gates. Mann (1993: P. 124) has mentioned that in Islamic countries walled cities with their four gateways reflect the cardinal directions. In Iranian culture the four cardinal directions also, symbolically, refer not only to the world but also to the house. Mann adds that in Islamic societies "the four cardinal points, together with the two poles of the vertical axis, provide the six primary orientations and lead to a hexagonal architecture." Orientation based on the cardinal directions together with two poles also have deep symbolic and philosophical meanings in Iranian culture and in the organisation of the physical environment (Barati 1996).

The rhythms and shared spatial characteristics that have led to a continuous urban texture were typical of Iranian traditional built form (c.f. Tavassoli M. 1983; 1992; 1993). "The hexagonal orientation of spatial forms had led to generic forms and constituted the general pattern, which unites bazaar and mosque, house and college, college and caravanserai, parts and whole." (Yavari M. in Mardaga 1986: P.26). The sacred architecture of Islam - in particular the mosque - is an image of the cosmos and of the cosmic dimension of the human being. The house, palace and city are based on similar principles, as extensions of the mosque (Tavassoli 1983, 1992; Mann 1993). These fundamental shared principles symbolically create

a unity among different elements in the built environment and guarantee the continuation of wholeness that is vital for any culture to survive. This unity is represented symbolically both in forms of the interconnection of parts to each other on the one hand, and parts to the whole, on the other.

In many traditional societies various daily activities may have strong regard for or links with religion. This reality may resist globalisation and the sole physical regulations of planning and design disciplines. The traditional sport in Iran, for instance, which has a specially designed space, Zoorkhaneh, has deep connections with many other aspects of the Iranian culture. It is connected not only to health, but also to the social conceptions of manhood, religion, Iranian literature on mythology and poetry, Iranian music, social notions of the Master - Disciple relationship, history and many other aspects and beliefs. From the nonverbal symbols point of view it is also related to a huge network of philosophical views of Shi`sm and Sophism. From an architectural point of view the interior design and many other features of the Zoorkhaneh connect it with the patterns of the traditional house, mosque, and shrine. The Zoorkhaneh, like the other traditional buildings, is certainly a cumulation of deep and important symbols in the Iranian culture.

The house is the most absolutely private place for a family, even when it is located in a very compact town texture. The sense of privacy is a very strong aspect of the Iranian culture. The belief has created many values of which the strongest is that in domestic circumstances no one is allowed to see the inner house for any reason. The situation may indeed parallel concepts of privacy in other cultures but it has influenced the production of a very particular architectural form which could be seen as the result of the transformation of this value. The rich and extended semantic web placed into the environment, and indeed out of which

cognitional access to the environment is achieved, is in itself one of the tools of the transformation of knowledge through the generations. The result of this symbolic system is the privacy associated with non-overlooking windows in residential patterns of the traditional towns in Iran and the other Moslem countries. Although beliefs and symbolic values still exist in the society, many modern developments and the planning criteria behind them are not congruent to them. Arthur U. Pope in his very famous book about Persian Arts (1939: P.904 & PP.1403-37) argued that in developing the traditional built environment in Iran planning and structural techniques are themselves the product of, and very largely controlled by, cultural factors. This not only set the problem and defined the character of building needed and its functions, but also dictated in a large measure the building methods employed. Inherited tradition plays an inconspicuous but fundamental part. This symbolic cultural influence on planning and design can be seen in traditional Iranian gardens (e.g. Brookes 1987).

5.5.2. The Nature and Function of Nonverbal Symbols

Symbols, if they are to be recognised and obeyed should be structured clearly and simply. To be identifiable, symbols also have defensive structures (Rapoport 1977). Some societies, for instance, have symbolised the 'Country', into 'Mother' to ensure forever that there would be no doubt among people about defending it in any circumstances. In other words, one's country has been connected with the most basic and natural human emotions: to love one`s mother, one of the most common and strongest emotions known almost everywhere in the world.

Recognisable symbols and meanings in the environment will increase the sense of security and

consequently, there would be no need to fear or be suspicious of that environment. In the case of experiencing an unfamiliar environment, it is always necessary to gather and process a large amount of extraneous information. The processing of the extra information is not economical and will lead to wasting a lot of energy. It is probably one of the strongest reasons for anxiety in people when faced with strange environments and illegible symbols. The sustainable people-built environment relationship is based on this legibility which reduces environmental contradictions and stress (Rapoport 1980). The degree to which a new place or situation becomes stressful rather than a curiosity depends on this legibility of symbols. Indigenous growth and developments with sensitivity to this point will reduce the stress and anxiety of unfamiliar places through the considered use of familiar environments and symbols.

The importance and value of the symbolic structure of cultures have been largely ignored by the oversimplified approaches of planning and the global standardisation of urban developments in many parts of the world. Because symbolic structures relate so closely to cultural identity, it is of fundamental importance to consider the contribution of continuity, experience through all time, in particular the past, without which identity cannot be actualised. De Bernardi, quoting from Bakhtin, argued that the sense of connection with the past is a central element in the sense of identity generated by such things as festive events: the people in a carnival square are first of all aware of their unity in time, of its relative historical immortality. Therefore, people do not perceive a static image of their unit but rather the uninterrupted continuity of their becoming and growth (Bernardi 1992). This unity makes distinguished the whole which includes people themselves, and gives the whole identity. Two psychological functions are considered important in a place: 'orientation' and 'identification': To gain an existential foothold, a person has to be able to "orientate" himself, he has to know "how" he is in a certain place (Sime 1986: P.51).

A basic process underlying identity, and giving meaning to the world generally, is the classification of the world into cognitive domains. The built environment, on the other hand, has been the symbolic identity of the society or a group in the society. Therefore, this potential role of environmental elements should be strongly considered. Rapoport (1970) argues that group identity depends on the survival of the group and its culture, and that pressures placed on culture lead to a weakening and may be a loss of identity. Equally, it is possible to argue that the continuation of the group itself depends on the survival or strength of its identity. Identity, then, is one of the main comminication tools for the society which assert and attain its cultural wholeness and unity.

Festival cycles provide the community and its subcultures with varied opportunities to celebrate their own existence (Bernardi 1992). These symbolic activity structures should be adapted to the spatial structure in a given society. When these two do not match, mutual destruction is inevitable. Non adapted environments damage not only the systematic relations between symbolic meanings and symbolic activities but also damage the unity in society that is completely linked to these symbols and requires their manifestation in time and space. There is enough evidence to suggest that when the identity through symbolic systems integration has been broken or threatened, social problems increase (e.g. Rapoport 1977).

The beliefs, values and norms of a society have to be exercised in the real world, and for this to happen relatively adapted tools, i.e. behaviour, built environment, etc. are needed. Otherwise, deep contradictions will surface and either the built environment or socially sustainable life will be seriously in danger. The opportunity that the built environment is supposed to provide for the society to implement not only its cultural settings but also its unity, is necessary for the maintenance of social continuity because it makes people more

aware of each other and their available resources. Traditional societies which may be fragmented by issues such as disparities of wealth, socio-political status, gender, age, education, and so on, can be integrated again through the practice of traditional rituals. The congruence of symbolic value systems and the built environment here is crucial. Symbolic values contradictory to the built environment could be one of the most important root causes of many urban development problems in the modern world.

5.5.3. Verbal Symbols

Language, as a symbolic system, and environment are two integrated phenomena. Actually it is not possible to imagine a language set apart from the environment it belongs to. In cognitive maps, place units are assumed to be represented as information about a set of properties. This includes name, perceptual characteristics, function, and spatial scale (Garling et. al. 1984). Meaning is not something set apart from function, but is itself a most important aspect of function (see Fuhrer U. 1990). As a result, to find out what kind of function an element has in a given environment, one has to know about the deep meaning of that element. One of the main resources for this kind of meaning is language because as Culler has argued language is an explicit representation of the people`s implicit knowledge. The facts which linguistics must explain are various, but they are all facts about this implicit knowledge (Culler in Robey 1976).

Although there is just one real world, cultures and languages create a variety of worlds, or a variety of interpretations of that one world, not only because of linguistic patterns and context but also because of dissimilar cognitive worlds (Hall 1973). According to Beniamin Whorf (1956) each person, depending on his culture and his tongue, carries about himself a

relative pattern of knowledge that according to semantics (also see Eyseneck 1995) is well organised and categorised, in the form of millions of "words". Whorf called this storage a microcosm or "thought world". This thought world is used, unconsciously, in everyday life to measure, understand and interpret the macrocosm or "external world". Consequently, cognition of the environment is affected by culture and language and all these issues lead to specific environmental conceptions and perceptions. Indeed, the world is basically built up, unconsciously, through the society`s language (Sapir in Whorf 1956).The attempt is to give the world meaning, to humanise it by imposing an order on it, a cognitive order that is often achieved through classifying and naming. One could say that order in the built environment is thought before it is built (Rapoport 1980).

The significance of language is that it is not only used to connect individuals to each other in a given society. Language according to Edward Hall (1973) enables one to understand and interpret all events in the environment and to cope with them. It also stores the deep meanings and values of environmental factors and transfers them from one generation to the next. The formal equivalent of language as a structured whole is the morphology of the physical environment as a social manifestation. The equivalent to speech is the individual or group transformation and elaboration of that structure (Hillier 1972-73). So it is possible to argue that language has a great task in protecting the structure of the culture systematically. Further, it is not possible to consider any culture separated from language and materials that belong to it (Hall 1966).

There is a strong opinion among linguists about the concept of an interrelation between language and culture. Love N. (1992), for instance, argues that learning a language and learning a culture, if not one and the same thing, are at any degree symbiotically

interconnected. No matter which definition of culture we choose, there is no doubt about this linkage. Whorf (1956) argues that language not only is applied to human behaviour, but also is connected to the whole culture. It is even been suggested that language can be examined in order to establish criteria for the other cultural systems (E.Hall 1966). So it is possible to claim that culture is symbolised and embodied in language. Every culture and language is unique. Just as in culture, within which each element gains its meaning because of its relation to the whole, the meaning of a word is a function of its relationship with other words in the same language, and the boundaries between the meanings of prima facie equivalent words in different languages may be, and very frequently are, incongruous (Lyons in Robey 1973).

E. Sapir was the first to realise or envisage a strong correlation between language and culture (Hall 1966, 1973). Whorf, following Sapir`s theory, extended it and hypothised the language-thought-cultural interconnection. He argues that conversation is rooted in human culture and is related to thinking. It also has been argued that every language is integrated with the culture in which it operates; and the word-meaning that a language establishes is structured in terms of distinctions that are important in that culture (Lyons in Robey 1973). This should be true in terms of the built environment as well, that it is shaped and based on the principles that are significant in that culture. The interconnection between language and the built environment is, therefore, the manifestation of all these relations.

According to Williams K. (1991) there is a basic question and discussion in human anthropology as to whether language constructs culture or is constructed by it. He states that this issue was hotly debated in 18th and 19th centuries in Europe. Then he adds that as a result of this debate, the notion of linguistic relativity emerged. This relativity indicated that different people with different cultures will make different languages. Eastman C. M. (1981)

argues that cultural knowledge and linguistic grammar are one entity. According to him a grammar of a culture and the grammar of a language would be complementary and mutually reinforcing. So it is possible to conclude that the pattern of the knowledge embedded in language, at least, is a manifestation of the pattern of the cultural knowledge.

There are many arguments about this interconnection according to which one can say that language emerges from culture while simultaneously constructing it (c.f. Graevl 1988; Williams 1991). Language can be seen as a part of the human communication system. This function of communication itself serves to convey the culture. Therefore language makes culture, because communication amongst people is the main reason for the emerging and developing of magnificent cultures all over the world (Williams 1991), and also carries it. It means that what affects the culture could also affect the language and vice versa.

Language and culture, therefore, have developed side-by-side, affecting each other continually. But language also has a strong role in cultural evolution. According to Gravelle (1988) as language grows through certain stages, so do the intellectual powers of a civilisation. Whorf also believed that linguistics, based on its own patterns, collaborates both with cultural desires and unconscious individual effective actions. It also gives on indigenous quality to people's activities in a particular culture.

Chase (in Whorf 1956) argues that the significance of language from the cultural point of view is that language acts as an important institution in the establishing of human society, in education and the transforming of ideas from one generation to another. This is possible just through the language. E. Hall (1966) also suggested that culture is nothing but behaviour that is learned and shared by the people who belong to that culture. He then added that language

enables people to learn and learning is actually one of the fundamental activities in life. So linguistic interaction between the generations is the most effective means of transmitting information through time. As a result it is not possible to imagine culture and language isolated from each other.

Since the contents of a given culture is embedded in language, every language contains its indigenous specific cosmic and basic philosophical point of views. Language can be considered as the people's container for thought as well as culture and civilisation (Whorf 1956). What we are looking for in essence as the key issue, is to find out the relationship between the built environment, as a significant part of every culture, and that culture`s language.

Using language to refer to the environment may seem to divide the environment into units expressed as words or phrases. However, we should consider that we do not only refer to a simple object but also to the many associations and cultural symbols connected with the object and the word naming that object, as elements within the whole. At the same time, the words and phrases are also elements within a holistic structure, and dependent on objects in the environment and, what is more, both of these structures, that of language and that of the environment are interlinked and form part of the whole as well. The principle to be identified and remembered is that any whole can be seen as being made up of parts, and all parts must be interconnected and related to a whole.

How this is done in every language is different and all languages differ from each other in this issue (Whorf 1956). There are many examples of diversity of languages. Stuart Chase (Ibid.) argued that non-Indo European language speakers interpret nature and the universe in

different way from Western speakers. Whorf also emphasised this kind of differentiation by suggesting that Western languages give priority to objective experiences, whereas, in contrast, Eastern language speakers give priority to subjective experiences. He also concludes that these Eastern languages do not present an objective imagination of the universe to the same degree as Europeans languages, indicating possible new types of logic as well as new types of cosmological interpretation.

He then suggests that different environmental conditions affect the things that people are used to thinking about. Rapoport (1981) referred to New Guinea where one finds 700 different languages and many settlement patterns, village forms and house types. So over time speakers in a specific language develop words and phrases to describe concepts of their environment which are strongly relevant to their sustainable survival, biological and social, based on experience. This is the reason for the interconnection between language and built form as well as function.

The type of stored and transformed information in languages may differ. This is likely because of different types of resources and experiences through history. The Hanuxoo people in the Philippines have their own local 92 names for different varieties of rice. The Eskimos also have dozens of words for qualifying different conditions of snow and ice and there are hundreds of camel-related words in the Arabic language. There are also two words in the Hopi language for 'water' whereas in the English language there is one word for it (e.g. see Whorf 1956; Eysenck 1984). Arenguren A. J. (1967) considers human life as nothing more than a communication process between people and their environment. He then adds that language is the most important element in this process. Whorf argues that various languages classify experiential items in different ways. So while in one language the classification of

reference and its related thought may be considered as one word in another language it may take the form of two or more words and thoughts.

Language is also a tool for educating new generations. Children learn the knowledge and concepts related to the environment through language (e.g. see Love N. 1992). Therefore, language has a very important role in terms of establishing environmental perception and cognition and in the transformation of meanings and symbols. Concerning the built environment, the deep meaning of a word can help us to see the differences. In Persian language the word 'house' has got many synonymous and meanings. One of these indicates 'House' as synonymous to 'World'. This symbolic meaning simply shows to what extent the significance and complexity of this space can spread. Therefore, in terms of this specific culture the symbolic structure of the word 'house' establishes prototypical subjective boundaries for an ideal concept of house in Iranian society. The word 'khaneh', similar to the concept of 'house', in Persian has many meanings each of which extends to other meanings and synonyms. If one writes down all these words and continues one will come across an endless pattern of the informational network. This is not the case only for Persian, the word 'house' in English also has got more than thirty synonyms (e.g. see Collins Thesaurus 1992) and one can find similar complexity in this language that is in fact a pattern of cultural knowledge. It also shows how in any culture every single thing can, and should, be connected to other things in order to gain meaning. Naming things in the environment is a way of symbolising them, making people aware of themselves and how they perceive the world around them. So language has a key role in establishing people`s cognitive schemata. It is possible to say that what people in Iran, for instance see as an acceptable house is basically indicated by their schematic prototype of 'house' affected by their cultural values and embedded in the deep meanings of the house in their language.

The author suggests that the relationship between people and the built environment has always been given considerable attention within environmental studies. The nature of this relationship, however, has received different treatment within the various disciplines. There is a common problem within this discourse concentrated around the difficulty of reading and defining the elements which condition people's relationship with the environment. This difficulty underlies many related theories and their effective use within the various disciplines.

The problem lies in concentrating on the elements themselves as distinct objects rather than looking at the process by which we define and read the elements. The key point therefore lies in understanding this process. Distinctions are first known; people describe the distinctions through language, and finally the distinctions are established through the act of creation. This is the interactive process of conceiving, naming and creating, and the transmission of meaning. It is the process of encoding and decoding the environment, and it transforms both the environment and relationships with it.

There is a story about a stone. A man walking along the road comes across a large stone which forms part of his path. Nearby is a cave. The man pulls the stone from the path and puts it across the mouth of the cave. What this illustrates is the creation and transformation of meaning through making distinctions and naming. The man sees a part of the path as a possible door to the cave, it already holds a new association for him, he moves it, mentally naming it as a door, and the stone thereby comes to express a different meaning which is also understood by other people.

Naturally, real life is not as simple. If the intention is to transmit meaning, the act of creating meaning might not be difficult, but the real importance comes in the transmission of that

meaning to others, ensuring it can be read. Actions will have implications because by reordering the elements of the environment meanings are created and they may not always be those intended. If the stone across the cave entrance is meant to become an entrance, for instance, the man must make sure it does not hide the cave instead, he must mark it or arrange it in such a way that it can be read as a door.

In this process language and environment are related: both expressing the cognitive process of making distinctions, and reflecting the tendency of the human mind to understand and communicate with the outside world. Naming delineates the door and associates it with other elements, puts it into a whole, changing its relationship to the whole. Naming and creating are therefore part of the same process of integrating, interpreting, and building intimate association with the person naming and creating. Discrimination, limitation and possibility are all closely linked.

Language is not only the most important tool concerning people`s ability in terms of communication, it also contains many important concepts and values for a particular culture. These ideas and values can be seen as adaptive features that allow particular cultural groups to achieve their goals and galvanise a sense of a united identity and institutional structure. Language when it is seen in this way can be treated as analogous to a mirror in which we see the values, ideas and priorities of a given society. Language, alongside nonverbal symbols, also institutionalises the unity of the environment. Linguistics, on the other hand, determines the structural interrelations between various elements and spaces in a given environment. For example there are some architectural elements whose names have particular semantic meaning within the culture. The use of these elements in buildings or spaces will automatically substantially create a deep sense of unity among these different spaces, unless

they are used totally without regard to context. Example of this, is the type of courtyard called 'hayaat' (enclosure), which in traditional fabrics can be found in houses, shrines, mosques, colleges, carvansarais, and others. It creates a sense of unity across all these different structures. This mechanism of naming to create unity is expressed also in the collaboration of other similarly loaded elements in a series of syntheses of spaces and building complexes resulting in the same sense of environment holism.

B. L. Whorf (1956) suggested that language has an immediate intelligibility for the people in any given society and that this is the main criterion that connects people as a society. Language is the carrier of culture. It is the most reliable tool that aids communication, the transmission of ideas, needed to perpetuate survival. Without language, thousands of years of interaction with the environment would have yielded very little in terms of culture, possibly even survival beyond particular levels. Whorf suggests that linguistic information is the consequence of repeated observation of 'controlled conditions' and a result of a series of systematic altering of certain controlled reactions. These procedures have been considered through the theoretical structure of knowledge, exactly as happens in physics and chemistry. Therefore, the human being experiences the world through thousands of years of systematic interrelation with the natural and the built environment. It is this interrelation that has created his knowledge about the environment. It is this knowledge that is stored in language.

The symbolic system is partially involved with linguistics (See Eysenck 1984, 1994, 1995). Although the significance of language in the process of understanding the world is obvious this fact has been almost ignored in people-environment studies. As Figure (5.1 P.269) shows people use both nonverbal and verbal symbols to perceive and conceive of the world in the same way, in that both can be seen as basically engaged with each other in a complex mental

structure.

In this part first the relevant theories about language and how it works to make connection between people and their environment will be discussed and then the way language can affect, and be affected by, the environment will be considered ". ...each language has its distinct grammar and vocabulary that provide the way to structure and perceive reality". (Gravelle S. 1988: PP. 376-7). The verbal and nonverbal systems communicate in a functional fashion via relations between imagens and logogens (Eysenck 1984, 94, 95).

Whorf (1956), when referring to the theories of Carl Jung, suggested that thinking in the human subject is mostly related to linguistics. He argued that the linguistic background of every language is not just a tool for the projection of ideas in the vocal system. It also shapes ideas and plans and directs one's mental actions for the 'analysis' and 'synthesis' of mental contents. Although there are different theories in existence about how and to what extent language is related to 'thought', no one has argued against this relationship. This is because of different beliefs and values. Languages are affected strongly by cultures all over the world. If we consider the built environment as the result of cultural knowledge and preferences, then language (with its relations to culture as a whole) can act as a resource for environmental knowledge and information.

J. L. Aranguren (1967) considering language as the perfect method of communication in any society, has suggested concepts of 'Emission' and 'Reception' as two necessities for any language. He also argued that it is not possible to scan any language isolated from human behaviour and the model of stimulus response. Not only human behaviour, but also other human affairs such as human beliefs, philosophy, science, as well as human psychology are

engaged with language (see Whorf 1956; Hall 1966). Therefore we cannot examine any built environment properly without refering to its related language.

Michael Eysenck (1984), on the other hand, regards the role of language in human life as the grounding of recorded knowledge and its transmission from one generation to the next. So the transformation of knowledge, ideas and values in the human society without language is impossible. Whorf (1956) believed that ideas can be communicable mostly by the language because it acts as the storage of public conception in society.

The last point that could be raised here is that although there are some globally shared factors among languages, every single language has its own characteristics. The cause is that separate histories and processes produce the evolution of different languages. Edward Hall (1966) has argued that every language should be examined in its own context and structure. Western thinkers, as Whorf believed, were not aware of the language structure, and considered their language as the only scientific and logic one, but as Chase (in Whorf 1956) stated that language is the result of widely different experiences of a certain community and it is not possible to prefer one to the other.

We can conclude by using Whorf's argument that understanding all human affairs requires reference to their cultures and specially languages as important parts of them. We should be able to use the language content and structure as a reliable tool to understanding and interpreting the deep meaning and philosophy of the built environment, as well as the connection between these and other systems in the cultural structure i.e. values, cosmology and world view. Whorf also argues that although we do not know anything from the deep roots of language evolution, we do know that this evolution has happened in a huge number

of very diverse systems by "Discerning, Selecting, Organising, and Operating with Relationship".

5.4. The Nature and Function of Verbal Symbols

To understand the nature and function of the language as a symbol it is necessary to refer to Whorf's statements of similarity between language and science: "Language is not just a technique for expressing things. Language is, before everything, a tool for classifying and organising the current experiences that are based on human senses, in a specific world-order. So language has the capacity to symbolise a part of the world and we can say that it is doing something that science does in a wider and more fluent way." (Whorf 1956).

As Chase (in Whorf 1956) has described, Whorf led to two fundamental hypotheses to surface in his linguistic researches: " First, that all higher levels of thinking are dependent on language. Second, that the structure of the language one habitually uses influences the manner in which one understands one`s environment. The picture of the universe shifts from tongue to tongue".

So Whorf s theory considers a deep diversity among languages and is based on his view of linguistic relativity. But, on the other hand, Whorf also discussed a global, and scientific, character of linguistics. He described the very essence of linguistics as the quest for meaning, and, as the science clarifies process inevitably becomes, as a matter of this request, more psychological and cultural, while containing that almost mathematical accuracy of the statement that it gain from the highly systematic nature of the linguistic realm of fact (Whorf

1956).

Of course there is some argument between linguists about the language-thought relationship. Some of them follow Piaget`s proposition that thought influences language and its structure, whereas the other group believe that language is prior to thought. Whorf and Sapir defend the second view (Eysenck 1984). In spite of this controversial difference, what is important, in this research, is that both propositions assert the relationship between language, thought and environment, or in other words the 'External World'. In a sense the important implication of this is that the adaptive characteristics of the indigenous architectures and thier successful solutions are the expression of native thought which are embedded in their language. This can only confirm the value of the holistic view in which language, thought and environment are engaged in a reciprocal exchange of generative processes. Accordingly one can argue that different cultures have been successful in the choice of their architecture and that there is little argument for the view that for the purposes of development they need to sweep away their development processes or import external solutions outwith their own cultural potential, thought and symbolic systems.

The semantic richness of indigenous cultures with their many words, each with distinct meaning, have been compromised in modern usage through the processing of globalisation where a few words have been invested with many meanings. In Iran, for instance, where there used to be many words for enclosure greenaries, now what is used by both designers and people is the word 'park' which does not release any extra information and does not carry any cultural values. What ordinary people understand from this word is an enclosed greenery, whereas the wide variety of local words for this element refers to different components of these kinds of spaces such as sizes, patterns, associations, and contents. As Gravelle (1988)

argues, the result is ambiguity and a cramped imagination. Poverty of vocabulary reflects on conceptualisation. In other words, richness of words can convey the plural extended thought, whereas limitation in the numbers of words will make the conception much narrower. To have several words for one phenomenon is not to restrict seeing but to see the phenomena from different angles with many meaningful senses. This is the best way to have more understandings from the world.

There should be some connection between language and perceiving the environment. In other words ideas can be communicable through the plurality of language that acts as the storage of common conceptions in the society (e.g. Whorf 1956). To examine this relation many humanists look to the differences in languages to explain differences in the perception of things (Gravelle 1988).

There is a theory about the cognitive process by Collins and Quillian (quoted by Eysenck 1984) which states that concepts and information in the forms of words are not saved in memory in an arbitrary way. According to this theory there is a logical organisation in memory in terms of classification of the words in it. They called this phenomenon 'semantic memory', and in creating this concept established a hierarchical structure where words are memorised with a logical hierarchy (e.g. Animal-Birds-Canary) from the top "Animal" to the lower level which is a "certain kind of birds" as a specific part of animals.

Of course reality is not so simple and we can see that people in various societies classify things in different ways and interpret events in various forms. Therefore one of the methods we can use to find out the real deep meaning of the environment is to refer to the deep meaning of the words in the local language because meaning and its associations with other

words and meanings will show a particular indigenous class which is mostly unique. The theories suggest that there is a strong homogeneity between this pattern with the cognitive structure of the human being in the cultural framework (see Chapter One and Chapter Four).

5.6. Language and Intervention in Urban Spaces

Language, thought and the environment are related in one way or another. The built environment is planned (thought) before it is built. Human behaviour is dictated by a culture that is significantly carried by language. The other significant point is that the imposition of globalised ideas from outside through architectural theories, urban planning and design is essentially the imposition of outside linguistic and cultural criteria where they may not be relevant. 'Forms', 'Patterns', and 'Words' should be developed and introduced together because they cannot survive in isolation and if they do there will be a serious break in the cultural systems. Consequently, if we want to adapt the built environment in urban areas with the local culture we must do it while concerned with the deep structural meaning of the environmental elements and functions. It is crucial that we consider language as perhaps the most significant functioning tool in this planning and design exchange.

The association of specific patterns and forms with a particular existing environment makes it act as a reminder of the continuing passing of history and identity and vice versa. Rapoport (1981) argues that what connects young generations to the environment are names and stories of different elements in the environment which could be considered as a part of the local traditions. These names and stories tie the people into the environment and establish a

unity between them. Unfortunately this important matter has been ignored in almost all the new urban developments of the Third World countries and Iran in particular. One of the reasons possibly is that traditional urban developments occurred as the natural expression of cultural process and as a result expanded along with people, symbols, and way of thinking. We can compare this with the natural growth of a tree, whereas in the case of the imported patterns and functions one can argue that these have no natural connection with the local culture. It is true to say that there was no time given to these imported ideas to cope with or adapt to what had already been built.

This study asserts that there are many examples of the relationship between language and the environment. One of these is greenery space in Iran. As was discussed earlier in this chapter, because Iran is located in the arid region, the symbolic meaning of the greenery there is different to that of European countries for example. The other influential factor to be taken into account in the consideration of 'garden' is that it has a strong ideological aspect. The naming of gardens has been one of the mystical ways of representing the world view in Iranian culture. Pope (1939 Vol. 2: P.1445) has argued that the names that the Persians gave to their gardens epitomise their feeling for them. He then refered to some of these names such as "the Heart Delighting Garden (Bagh-i-Dilgusha), the Miniature of the World Garden (Naqsh-i-Jahan), the Garden of New Year (Bagh-i-Nawruzi), the Raven Garden (Bagh-i-Zaghan), the Violet Garden (Bagh-i-Banafsha), the Garden of Fidelity (Bagh-i-Vafa), and the Garden of purity (Bagh-i-Safa)" adding that "Every garden was a paradise and the Persian garden was Eden eternal". One has to bear in mind that each garden, though based in the same criteria as the others, had its own individual characteristics (see Pope 1939; Ardalan, et. al. 1973; Brookes 1987).

Over the past century a considerable number of words, labelling different environmental functions, have been introduced into Persian language. These are the names and expressions of imported patterns, ideas, functions and the like. All these words, mostly nouns, have been imported from Europe particularly from the French and then the English. The reason for this is that the first students in architecture from Iran were sent originally to France (see Chapter Two). This was reinforced by the establishment of the first formal art college, The faculty of The Fine Arts, founded by French architect *Andre Gaudard* in 1930s in The University of Tehran. At that time the French language was the compulsory second language in the university. Influenced by French architect and literature, many French words and expressions were introduced by academicians as well as architects and planners. By 1940s-50s gradually Britain and America replaced France directing the academic institutions particularly those related to architecture and planning.

From that time on environmental studies have been influenced mostly by English literature. Examples of words introduced by the French are: parc, boulevard, restaurant, autobus, autobande, meuble and meublé, apartement, dublex, terrace, balcon, salon, passage (= superstore!), boutique, metro, machine (means car) and many others. There were also a similar number of terms which were introduced by the English such as block, lane, corridor, parking, telephone, supermarket, plan, fitted kitchen and many others. The use of these terms was imposed inspite of the fact that their real meanings have no relevance in the Iranian culture or language. It might be that this not only failed in helping people communicate and cope with the environment, but also helped to create the serious duality and confusion among people evidenced in this research (see Chapter One). One important consequence of this introduction of foreign words has been the disappearance of related words that do belong to the Persian language. There was even the idea of replacing the Persian alphabet with the

Latin one in the Pahlavi period by some intellectuals but this was rejected by the majority of thinkers as well as the people therefore the idea was quickly put aside.

Language within its cultural setting has the capacity for rapid or slow evolutionary development. For example the word 'Kooy' (= open and wide road) provides the root for derived names indicating the size and spatial situation of the passages. 'Kooycheh' (= 'Koocheh)' means the main alley, then 'Pas-Koocheh', means a minor alley. In addition there are many other related words, names and adjectives made from this word and its derivations. As this example shows, the hierachical structure of passages from the widest to the narrowest is embodied in the linguistic structure of the language. Every Persian language speaker, unconsciously knows that 'Pas-Koocheh' should be smaller than 'Koocheh' even if he or she never has seen them in the surrounding environment. The same process cannot be found in the imported words. No one makes derivative words from words like apartment, passage, boulevard, and so on. It means that there is a likelihood for people not to have a clear idea of environmental elements when using a "mixed up" language and a "mixed up" built environment. One of the best examples is a newspaper advertisement relating to the built environment. The statements such as "Aparteman-e, Dublex-e, moble-é, chic forooshi!", says "a duplex furnished fashionable apartment for sale". But every French and English speaker can immediately recognise that almost all of this advertisement is not Persian but a strange combination of three languages, French, English, and Persian. This distorted combination of languages might be another basic reason for the confusion among people in Tehran to be attributed to semantic confusion and lack of verbal and nonverbal congruity.

The study therefore asserts that naming is a kind of symbolisation of the environment, i.e. making available, understandable and observable information for the people which is vital for

their cultural and social continuity. The point that this study makes here is that in order to develop the built environment, one should consider the information embedded in language and compare any new ideas and functions with the indigenous cultural symbolism and associated semantic structure which exist in the names, idioms, expressions, etc. This would relate to the holistic aspect of the built environment to unifiy activities, physical elements, symbolic systems, and the human mind as one inseparable entity (see Chapter Three).

The following section is dedicated to a cross cultural examination of what can be considered as similar concepts all over the world. The idea here is to give examples through these concepts of differences due to semiological meaning and cultural association.

5.7. Symbols and Organisation of the Built Environment

One of the main concerns of this thesis is related to those views in architecture which attribute quality to the application of rational design principles. These principles are seen almost as scientifically derived, at least within the context of having a teleology of progress, a constant and even development, and the indefinite accumulation of reasonable knowledge. It is the contention within this section that the relevance of such understanding should be re-examined within the context of the different cultures for which a design pertains. In order to achieve this it was decided to elaborate further on the implications of cultural symbolism in the way people of certain cultures perceive and organise their environment.

The methodolgy used in this examination is a simple comparative philology of the differing relationships of some apparently similar environmental features used within different cultural

contexts. It takes a look at a few keywords which have been found to highlight a significant difference between some Middle Eastern and European cultures. What is being suggested is that there are deep semantic configurations and extensions of verbal - nonverbal meanings that are not easily transferable from one culture to another, that each symbolic system is strongly affected by the presence of various local phenomena.

Here the aim is not to compare potential and practical capacities of different cultures. The point made here is that since symbols, symbolic systems and the built environment, on all levels, should have a coherent representation of each other, the translations of patterns and words from one culture to another have to be considered as problematic, they should not be applied on the mere appearance of agreement. In a parallel gesture one would suggest that there is a similar fragile semantic extension and use of the architectural and urban forms within every local culture. Similar to a word's etymological development, the slow accumulation of habitual use, the gradual attachment of metaphorical extensions and understandings condition the acceptance and development of artifactual production within a particular environment. In this century however the pressures of globalisation have forced many indigenous environmental patterns and functions towards the forms associated with Europe, or more generally with the West. The question needs to be asked whether the imposition of these more recent patterns in a country like Iran has ever been appropriate?

The subsequent case studies are based on the examination of the relationship between local semantic significance and the morphology of particular architectural, urban and environmental features. Within this context one can include the material related to 'window', 'house', and 'garden'. The status of more environmental and cultural criteria have also been examined. The analysis is intended to demonstrate the layering of ever more complex

accretions of sense within an etymological development. With each new addition it becomes more difficult to transfer the full metaphorical or abstract extension that a function or element in the environment in a given culture may embody into another environment and another culture. There now follow some examples to illustrate the complexity of environmental concepts and elements in their own context.

5.7.1 Window

In Persian the meanings attachable to the term 'panjar-e' (the noun for 'window') are seen most visibly as "a kind of hatch (shutter) which one can look through from the inside." (Mo`in 1963). As an architectural feature, it allows visual access to the exterior without compromising the privacy of the occupier. In this sense it is a visual 'one way' system. Metaphorically the term also refers to 'the sky'.

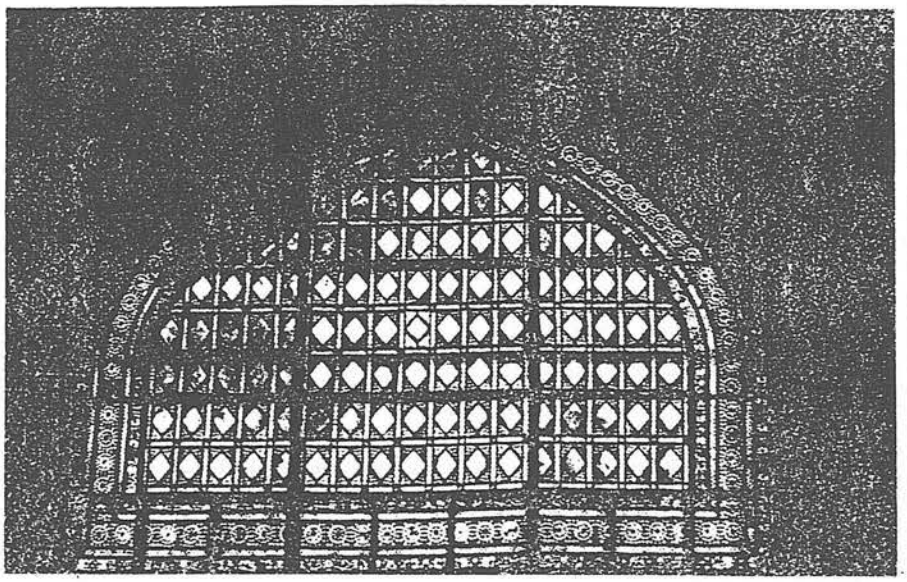
English cognates are more functional:

> 'An opening in the wall or roof of a building, car, etc., to let in light.., There is a little window in the cassette so that you can see the tape..., space behind the window of a shop where goods are displayed for sale' (Oxford Advanced Learner`s Dictionary 1989).

The emphasis is on the space of use and visibility and is reinforced by the word's etymological development.

"'Window' is derived from the Old Norse vindauga (vindre - wind + auga - eye). The word connotes an absence of barrier and visibility. From the medieval period the term is applied to the sense organs, particularly the eyes which are regarded as inlets and outlets for the mind.

Figure (5.2) - Traditional Iranian Window, *Panjareh*



Source: Kasraeian et. al. (1995)

Other senses of the term connote opportunity (a window of opportunity/launch window). These configurations of senses are particularly visible in the French/Latin cognates 'Fenêtre/fenestra'. Consider:

- (Latin - Fenestra) a loophole for the discharge of missiles.
- a loop hole or opportunity
- (French - Fenêtre) Space freed to be used or reworked later on as in a manuscript in the sense of a window of opportunity.

These senses are additional to the standard or more literal interpretation of the term. All of these senses connote absence but also accessibility and freedom of circulation and visibility." (Barati et. al. 1997).

The Persian metaphorical emphasis in its use of the term represents both cultural and ecological factors. In traditional architecture any window that faces public space as a screening system, and this was elaborated within the vocabulary of traditional architectural forms. This can be seen in the common use of coloured and painted glass, and small scale

patterned wooden frame placed within the window openings.

"In Arabic the term 'Nafidha' connotes a complex of meanings:

- 'Nafidha' as a noun gives an opening in a wall for something to penetrate an interior or 'Nafadha' the verb to penetrate
- As the 'verbal noun' the term 'Nafidh' is used to describe continuous and connected movement
- From a different root, the term 'Shubak' (window) gives the connotation of a place where things are knitted together. A small space or locus where different materials such as the textures of wood, metal, stone, even light and shadow are seen in close conjunction with each other.

These understandings have a more poetic or metaphorical understanding of the term than the more straight forward understandings of the European languages." (Ibid.)

5.7.2 House

"An initial analysis of the term 'house' produces the Old English 'hus' derived from the verbal root 'hud', derivable from 'huden', literally to hide. From these stems we also get the rather rudimentary term 'hut'. These understandings refer in English to questions of literal shelter and concealment. The sense of concealment and the protection associated with the term 'House' is common to most of the languages that we have surveyed." (Ibid.) For instance in Persian 'Khan-e' the term for 'House' denotes 'covering' as one of its meanings. However it could be suggested that due to the processes of differentiation caused by social, cultural and religious evolution 'House' will then take over newer senses. These more recent senses will present more difficulties in terms of a difficult transfer of the semantic content from the chosen language of departure.

In Persian there are several different terms in use that would translate into their English cognate 'house'. These are: 'Sara', 'Dar', 'Manzel', 'Maskan', 'Khan-e'. The last, 'Khan-e', is the most commonly used within Persian. It means the place where a group of people live together. However 'Khan-e' is the root for two other words, 'Khanevad-e' and 'Khahnevar', both of which refer to the concept of the family. The term has dynastic senses and in this context it is used to refer to the dynasty of the Prophet Mohammed (c.f. Mo`in 1963; Dehkhoda 1956-1979).

It can be seen therefore that both the subjective and objective ideas of house and family are very closely linked within the etymological structure of the language. Metaphorically 'Khan-e' also means 'wife', and from the point of view of Sufism it also means 'self'. This is a very dense semantic configuration and difficult to transfer from one language to another.

The term 'Khan-e' has different synonyms. Some of these suggest the subjective concepts of 'house' as well as other objective ones. 'Sara' and 'Dar', for example, are two synonyms for 'Khan-e'. At the same time, however, these terms are synonyms with the term 'world'. This suggests the important position of the house within Iranian culture as a metaphorical representation of the whole world. This significance is important in both the understanding of the term 'House' in Persian but also in terms of the understanding of the role and functions of the interior spaces of the house. It is seen as the space where people spend most of their lives. These spaces are also connected to the long chain of rituals, ceremonies and events which link the acting subjects to each other.

Finally 'Khan-e' gives the following senses:

- Tent, pavilion, shed.

- Kaaba, Mecca
- Homeland, motherland.
- The state of being at home/ the state of not travelling, synonymous with the Arabic 'Sakana' the state of remaining inside a house.
- A constellation of stars.
- Khan-e = Beyt = Couplet (a poetic device) (Dehkhoda 1959-79).

The house in Iranian Islamic culture, with its many variations and functions, as "an organisation of time, space, meaning, and communication" (Rapoport 1977) is, symbolically a person's strong territory, concerning existence, freedom and authority. These cognitive schemata have been symbolised within the Persian language as a configuration 'House=World', indicating the unity between people, their built environment, and their beliefs and values in the traditional built environment e.g., traditional houses.

"In close asociation with Persian, Arabic has a complex of meanings derivable from the terms for the house. Many of these have the same connotations of the Latin term 'manere':

- 'Sakana' as a verb gives us 'to cease to move, to feel comfortable with something, to remain inside a dwelling'.
- 'Askana' as a verb gives to force something to reduce its movement (to tame). Within this context we suggest that the term has a nomadic significance.
- As a noun 'Sakina' gives reverence, respect, and peacefulness and tranquility. Often used as a woman's name.
- 'Sakan' as a noun gives similar connotation to the European house standing for family or household. Again similar to the Persian and Latin.
- From a different root there is 'Dar' which gives tribe or country as understood in

terms of 'House'. Dar in Arabic also means 'the world'." (Barati et. al. 1997)

Although there are at least more than 30 synonyms for the word house in English language and each of them has several meanings, there are no similar semantic configurations or metaphorical extensions of the term in English. 'House' in any European language seems to result from the consequences of two specific lines of etymological development. "This is particularly the case with English as a mongrel set of accretions from the Latin based Romance languages as well the more Germanic ones. To understand the term 'House' therefore it is necessary to take into the account of the synonyms domicile, domestic, mansion (French maison). In addition to the study of the Old English and German roots for the term House that are mentioned above in is necessary to examine the connotations of the terms that are derived from Latin roots many of which have had their meaning transferred onto the questions of house in recent history. Domicile, domestic are derived from the following set of roots:

- Domo to subdue animals by taming, to quell, control, overcome, reduce an object to subservience, to reduce an object to a milder usable habit
- Domus the building in which one dwells - a house/home. The quality of reducing or taming wildness to subservience is implicit here.
- Domus as family, household collectively.

From these basic roots there are the following:

- Domicilium, a dwelling place
- domiducus a title of Jupiter as the god of marriage the bringer of the wife to the home.
- Dominus a title of lord, master of a household, manager, one who is in control.

The term 'mansion or the French term 'maison' brings an additional set of roots derived from the Latin 'manere' to remain, or 'mansio' the fact of remaining which has connotations of lodging, breaking a journey with a state of continuance or state in one position. The term has been generalised to become the place where one stays, an abode, dwelling particularly as a stopping place or halt. The stem also produces connotations of taming, making mild, such as 'mansuesco', 'mansuete/udo' (qualities of mildness and gentleness). In this sense there is a similar semantic reference to those related to domesticity and its Latin stems. 'House' therefore reflects a two stranded etymological development that is reflected in other European languages. On the one hand it relates to shelter and concealment - very basic aspects of security. On the other it relates to aspects of dominance over territory, other people (particularly family) and resources." (Ibid.)

More recent derivations of the term in English seem to be based on the modern development of the house/home based on the physical location, arrangement, or typology of a house (Terraced House, Detached House, Bungalow, etc). These have no real cognates in Persian maybe because physical location and typology are not important issues for a house in terms of either survival or socio-cultural values.

Finally, 'apartment' ought to be looked at. This is a term that is derived from Renaissance Italian (appartmento; appartare - to separate, to form into parts). The term enters French in the 1560s as a noun and shortly afterwards it enters English. It has no cognate whatsoever in Persian however in Arabic the slightly pejoritive term 'Shukka' (fragment, shard, piece) has very recently acquired the conotations of a dwelling. It is worth mentioning in this context that the apartment buildings in which a single building is made with several dwellings stacked into it on separate floors are not a recent invention. Rubble built tenement buildings of this

kind are recorded as a regular features in Edinburgh from the 1540s (Gifford, McWilliam, Walker 1984).

However there are many other examples in which new concepts replaced the indigenous meaning of elements and features within the Iranian context. House, for instance, is synonymous with the words 'Maskan = A place for Alleviating', 'M'wa = Haven', 'Manzil = A place for Descending', 'Dar = World', 'Sara = World', 'Chahaar Deevar = Four Directions = World' (c.f. Mo'in 1963; Dehkhoda 1959-79). All these ideas are symbolic meanings of the function of house in this particular culture by which a member of the society is informed as to the use of this space in terms of his expectations and behaviour. In fact the meanings related to house manifest part of the information that has been embedded in this space. Of course it is not quite as simple and straightforward as that. All these included meanings have to be supported by a complex network of information of related ideas and activities. For example social structure, rituals, social values and norms, and religious beliefs depend on and support the different symbolic meanings of the house in Iran. A considerable part of this meaning, for instance, is related to the idea and the structure of the family. We can see that the house offers safety and security for the family members against the outside world and provides a complete private world for a perfect unity for the family. This is very clear when we compare the traditional house with the modern one. It means that in the imposition of the so-called modern building there has been an imposition of a reduction both in the concept of family and clan relationship and the concept of house. It is possible, therefore, to see a systematic transformation of various symbolic senses and values in the pattern and structure of the built forms, embodied in the house, for future generations.

5.7.3 Neighbour

The most immediate minimum definition of this term for an English speaker is that of "two things or persons that are located close to each other (c.f. Oxford Advance Learner Dictionary). The Persian cognate 'Ham - sayeh' means "two or more people who are under the same shadow of the same ceiling, or two or more people whose rooms or houses are beside or near each other" (Mo`in 1963).

'Ham-sayeh' is a combination of two parts, the prefix 'Ham' which translates as 'mate' in English. The suffix 'Sayeh' approximates to 'shadow' in English. The implication of the Persian term therefore is that of having the same and unique shadow. 'Shadow' in Persian means 'protection' and 'support'. 'Ham-sayeh' therefore has a connotation that symbolises the interconnection and support that families give to each other. This semantic configuration has a strong root within Islamic values and laws as well. The comparison with relationships in some Western countries such as Britain can be seen in explicit contrast.

"The difference with the development of the English cognate is striking. The word 'Neighbour' (from the Old English neahgebur - neah [nigh- proximity] + gebur [bur, Old German, to dwell]) The term has rustic connotations and gives us 'boorish' and Boer. The French cognate 'voisin' provides a different etymology. The word arived in French during the twelfth century from late Latin types:

- Vecinus/ Vicinus - the state of being in close proximity to other people or things, a person living in a 'vicinity'. From this is derived:
- Vicinia - the land or area adjoining a particular point and by analogy the people who belong to a particular place or territory. The senses of this term are spatial rather than social. Indeed they can operate on very abstract levels:

- Vininus - An abstract concep of in the vicinity of another. Here the term carries connotations of 'cognate' or degrees of similarity between two terms. For instance it develops the syntactical or structural relationships that may exist within the framework of a scientific paradigm. Here the term is at its most 'relational'." (Barati et. al. 1997).

In most of these references the terms are essentially spatial and deal in no way with the kind of relationships that might exist between different parties within a place. Therefore when Peter Hall writes (1966) "the fact that you live next door to a family does not entitle you to visit, borrow from, or socialise with them, or your children to play with theirs" he is being true to the senses of both the English, French and Latin cognates of the Persian term. It means that we can not replace 'Hamsayeh' to 'Neighbour' simply because they indicate not only different but opposite symbolic meanings.

The names that a particular society gives to the environment are replete with the symbolic meanings that those aspects of the environment are expected to have. In addition, by 'naming' an aspect of the environment in line with the expected symbolic characteristics it is supposed to have, it is possible to transfer these meanings from one generation to another.

5.7.4 Open Spaces

The differences between these semantic phenomena and their alternatives elsewhere can be shown in other ways. Perhaps the most significant in the area of urban planning and urban design is in the attitude to green spaces in the natural and the built environment. A relevant example here may be the phenomenon of 'park' which is the outcome of selection-combination process which took place in some parts of Europe and then exported to Iran.

The equivalent in Iran to the Park has always been "Garden" which has fundamentally different meaning within the Iranian culture. In that it is seen as a Paradise due to the value of plants and greenaries in an arid country such as Iran. On the other hand the Garden has a very strong social value due to gathering people in its shadow particularly during day time and for a variety of social uses such as receiving guests and the like. Gardens in Iran always are associated with growing fruits and sometimes vegetables rather than with decorative plants. In the courtyard small gardens, 'bagh-cheh', many households grow fruits and vegetables for the family use which adds another practical value, due to shortage of water and suitable soil in this region, to the metaphoric one. The use of garden to moderate climate is very common but its association with water gives it a special value. One of the most important attributes of garden, alongside the traditional house`s courtyard, is its association with many social ceremonies and religious rituals which normally take place in the garden and which confirms its special place in the Iranian culture that can not be found in the newly imported concept of Park.

Rapoport (1964-1965) mentions that 'garden' in Iran commonly is a composition of greenery and water. The scale of the garden here is not the main concern, any size of greenery and any amount of water form the basic concept for an Iranian garden. The function of garden versus desert has created many symbolic concepts such as Heaven / Hell, Life / Death, Support / Ignorance, etc. (e.g. see Brookes 1987). In Iran a patch of green in the barren landscape has special significance: it is a symbol of life and of human dominion over at least part of the cruel landscape (Rapoport 1964-1965). In other words the concept of garden stands in opposition to the concept of desert whereas in Europe, for example, garden has the concept of organised landscape within a larger predominately green space. Consequently what is imported to Iran, as a European model of greenery, cannot match with the garden seen within

the Iranian local culture. This is largely because of the differentiation in terms of both physical characteristics and associated ideas in both contexts.

'Garden' in the Iranian culture has been the subject of rich literature in which it is located in a large network of other ideas and symbols. Brookes (1987: P.209) argues that the different aspects of garden in Iran "have been praised and evoked in metaphor from Quran onwards: in literature, in poetry, in carpet weaving, in miniatures." (also see Pope 1939). The premium placed on water and greenery has a long and deeply rooted history. As natural elements these phenomena are crucial in representing sustainability. For example their importance has also been reflected within Persian in different ways, in terms of words, names and expressions. There is quite a degree of discrimination between different kinds of green spaces in the natural landscape:

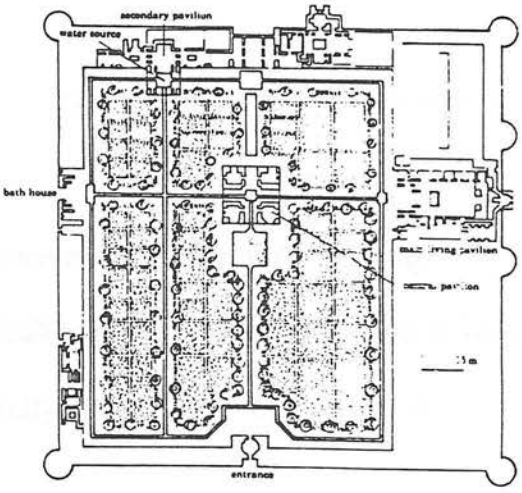
'Bagh', 'Rodha', 'Golestan', 'Boostan', 'Golzar', 'Golshan', 'Chamanzar', and 'Lal-ezar`. These terms can be used to identify different types of green space in terms of different kinds of plants, functions and even patterns. These terms do not only determine the typology of different kinds of green spaces, but also the complex interrelationships that they have with other aspects of the culture. To emphasise the point, language provides the root between these spatial types and the other aspects of the culture.

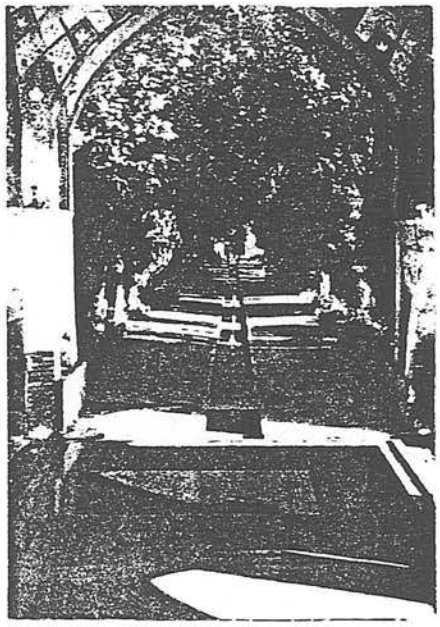
'Rodha' and 'Golzar' refer to Islamic beliefs and values whereas "'Golestan' in Persian language refers to a place (or garden) which has plenty of flowers, particularly roses. It also refers to parts of Iranian music. Finally, the term 'Golestan' gives its name to one of the most significant literary masterpieces in the Persian language. 'Boostan' is another term that designates an orchard. Here the term also requires that the planting be specific enough to

allow flowers or grass be planted between the fruit trees. The term has spacing requirements. More loosely it has been used to designate any pleasant garden. Similarly the term is used in Iranian music and similarly to 'Golestan' gives its name to a piece of Iranian literature. The interconnectedness of these terms with attitudes to the environment, to art and the design of spaces is significant. There is a great deal of significance attachable to the notion that language, structure and the etymology of terms and expressions. Such significance provides indigenous environmental criteria, which is invariably lost or distorted in translation. It is difficult to find such configurations within the English cognates 'park' or 'garden', although 'pastorale' does have a musical connotation."

In Persian there are at least thirteen compound words made by using the word Bostan as the root. 'Bostansarai', on the other hand, means (house) courtyard garden (c.f. Dehkhoda 1959-1979; Mo'in 1963). These and many other examples show that there have been evolutionary interrelations between people, language and the environment in a specific cultural context. On the other hand, one can argue that Iranian culture always has been capable to create many original patterns of gardens which could be expanded to many more secondary patterns and forms. However in modern designs, all these cultural concepts and variations, have been almost ignored.

Figure (5.3)-Plan and photograph of one of the most famous Traditional Persian Gardens in Iran, *Fin*





Source: Brookes (1987)

In addition, although there have been rapid changes to the Iranian life and the built environment there is almost no new concept or meaning relating to green spaces in the form of new words or components. In other words we are dealing with a halt in the evolution and development of not only planners` and designers` creativity, innovation, and built forms, but also of symbolic meaning in the language.

"The extensions of the term 'Garden' in Arabic also present some interesting differences with Anglo European understandings of the term. The suggestion is essentially that because of the undifferentiated nature of the environment in arid regions, the fact that they are for the most part desert, would indicate a significant degree of importance when any intrusion is seen or made within this environment. 'Garden' therefore has the connotation of purposeful looking at something intruding within a uniform environment, hence:

- The verb 'Hadaqa' - to open ones eyes and look, purposeful looking.
- 'Hadaqa' as a verb has an interesting connotation of intrusion within a uniform space.

Its literal meaning is to surround someting from all sides - connotation of 'oasis' perhaps!

- The noun 'Hadaqah' - the pupil of the eye, a place with a wealth of water and greenery.
- The noun 'Hadiqah' - an orchard surrounded by a wall." (Barati et. al. 1997).

However 'parks' are now spreading all over to country, even in some rural areas. What is difficult to accept is the trite copying of European green landscaping whilst the strength and identity of traditional Iranian garden history seem mostly ignored.

5.7.5 Shadow

Different cultural conceptualisations of shadow rarely have the negative connotation that is seen in recent Anglo European uses of the term. The Japanese poet Tanizaki connotes need and psychological shelter with shadow similar in many respects to the Heideggerian concept of 'dwelling'. Here shadow connotes a dense configuration of security and shelter not really visible in post Renaissance Western understandings.

In the Persian language, generally shadow, 'Sayeh', has a positive connotation. In addition to the ordinary meaning of 'Sayeh' in which it addresses the phenomenon which emerges once something stands in front of a light sourse, the deep symbolic meaning of the word commonly refers to protection. Metaphorically, for instance, it means 'protection', 'aegis', 'auspices', and 'patronage'. It also means 'kindness'. If we say: "I hope God will never cease to throw a shadow over your family" by shadow we mean protection as well as kindness. Therefore it does not have a negative impression. Significantly these negative and positive extensions embedded in two apparently similar words in English and Persian have the same difference

in extension when dealing with the environment. As illustrated, the environmental conception of the shadow in Iran and Britain are seen as opposite. Whereas at noon in Iran all the people in the summer season seek refuge from the sun in the shadow of a tree or a wall, in Britain, almost at the same time and in the same season, they seek sunshine and escape from shadow, quite literally lending credence to the lines 'mad dogs and Englishmen stay out in the midday sun'! It is therefore possible to say that these systems can lead to, if not opposite, at least a varying perceptual environmental understanding in different societies which can conclude in different perceptual schemata.

Figure (5.4)-The concept and the role of shadow, sayeh, in arid regions

Source: Barati (1993)

"The extension and connotation of 'Shadow' in Arabic is interesting in that the emphasis for the majority of expressions concerning it are cast as verbs rather than nouns. 'Shadow' in Arabic therefore has both an active or dynamic connotation as well as being able to represent stability, duration and continiuty:

- As a verb there is 'Dhella' which means to project a shadow/ to elongate or attenuate.
- Modifications of 'Dhella' as a verb connote existing or persisting in a particular state, expressions of continuity.
- 'Dhellala' means to project or offer (the security) of a shadow. There are connotations of safety and protection in the term,.
- 'Adhella' as a verb indicates the advancement of time which is metaphorically understood as a 'foreshadowing'. The term can be used to indicate the approach of a month, or a person or a thing. However there is a slightly different inflection involved in this foreshadowing because in Arabic it is not the shadow that moves during the course of time but those objects outside of it. It may be that this particular extension of the term 'Adhella/Shadow' is due to the slow moving nature of shadows in areas close to the equator. In the north shadows move far more rapidly and are therefore likely to connote instability.

By extension objects are seen as transient, impermanent and mobile whereas shadow provides a fixed locus or position. The shadow is not seen as an objective phenomenon but a temporal one. In addition to the large range of verbal connotations for the term in Arabic, there are a number of associated nouns that have some significance for the understanding of materials, architectural features and natural phenomena:

- Dhil shadow - dignity, wealth, protection.
- Aldhella - permanancy of residence.
- Dhilal - waves on the sea (the shadows created by the movement of water).
- Dhaleela - garden with very dense trees planting/cover - view of a river in a darkened valley

Finally there is the verb 'Istadhella' which connotes protection from envy. It also has the connotation of concealment, feeling secure and protection from the sun. The dark has a positive connotation. It is also worth noting that 'shadow' has similar extensions to the terms 'hus' and 'huden' derived from the Indo European root to cover and hide discussed above which gives eventually the term 'House'." (Barati et.al.1997).

'Shadow' in English has acquired a consistent set of meanings and related expressions. Indeed its cognates in other European languages carry many similarities. Therefore a discussion of the concepts related to the term in English would benefit from a wider etymological examination. Here the discussion addresses the significances contained within English, Old English, Latin and French roots. Shadow/Shade is derived from schade (medieval English) and Sceawain, scaedu, scead (old English. Generally these terms connote darkness and absence:

- Obscurity, overshadowing
- to screen from view or from knowledge
- imperfection

Earlier uses had more positive connotations such as to screen or protect from attack, blame, punishment but these are no longer current. Shade has a number of connotations of its own:

- qualities of minuteness
- an insubstantial image of something real
- fleeting or impartial existence
- the impalpable existence of a dead person - a ghost

"A similar etymological development is seen with the French correlate 'Ombre' which is

derived from the Latin 'Umbra'. In French 'Ombre' again has qualities of secretness, obscurity, forgetfulness as in 'Laisser une chose dans l'ombre, dans l'incertitude' [to leave something in the shadows or in obscurity] Similarly it has qualities of chimerical or partial existence. 'Nous poursuivons des songes et nous embrasons des ombres' [We pursued our dreams but caught only shadows]. In this sense the French term has strong similarlties with the English cognate 'shade'.

Unsurprisingly, the French term is very much derived or implicated in the network of meanings surrounding the Latin 'umbra'. Again there is a distinctive similarity with its later cognates:

- Sheltered conditions or existence, retirement
- the disembodied form of a dead person - a ghost
- a person of extreme age or debility
- semblance, empty apparence, abstraction." (Ibid).

Generally the more positive connotations have lapsed in more recent history. Therefore when shadow is used in the more protective sense as in English, the protection given is not always positive:

'For years he lived in the shadow of his famous mother'

5.8. Summary

There are two important points that should be considered in any planning and design effort

if one wants to consider cultural interpretation. Firstly, language is one of the most significant sources of knowledge about what and how an element is supposed to be and why. Secondly, if it is to be meaningful, understandable, and communicable, every development in the built environment should be linked to the existing language. To have a sustainable cultural environment any new idea is welcome if it can take root not only in the indigenous built environment but also in the existing symbolic systems, (including the pattern of the language). The result would then be sustained homogeneous physical and symbolic patterns in the environment.

* Symbols and symbolic meanings are the basis of wholeness in the environment

* Unity in the environment and the process of unification of the environmental ingredients is possible because symbolic systems, symbolic meanings, and symbolic objectives are at work.

* Without meanings and symbols there will be no appropriate understanding of the environment. The people will be passive instead of active in terms of any contribution to the environment. As the result of this there will be a deep misunderstanding. There also will be no learning.

* The result of a lack of communication between people and their environment will be a mutual destruction process.

* Culture is nothing but symbols and meanings.

* There should be a kind of logical agreement between the environmental structure and the structure of people`s minds. Since people`s mind structure is basically related to meanings and symbols, the adaptation between built environment and the symbolic systems and meanings ia inevitable. Otherwise there would be a chaotic environment.

* The symbols and meanings indicate what people are not, who they are, or who they want

to be.

* Understanding the world through symbolic systems means to process the image base as well as linguistic base information coming from the environment.

* Symbols make economic understanding of the environment likely.

* The result of processing the image-base and linguistic information is encoding, decoding, organising, storing, retrieving, and distinction of environmental information. In other words it is analysing as well as generalising different concepts.

* symbols carry culture as well as concepts.

* Unification between symbols, meanings and the built environment will lead to unification between people with time and space.

* Symbolic systems are responsible to correlate cultural knowledge with the environment. In other words, symbolic systems, by giving meaning to the environment, make the unification between microcosm (= thought) and the macrocosm (= external world) possible in which people can understand the world and act accordingly.

* Without symbols and meanings there would be no continuation of human societies

* Natural environment is represented in symbols and meanings, i.e. language.

* Symbolic systems are the result of cognitive processes.

* Symbols lead to value awareness in the society.

Conclusion

1. Review: Establishing the Problem

The author explained early on in this thesis the origin of the concern that gave rise to this research. The experience of working with people as a planner in the war areas raised questions about the current planning and decision making processes which leave no room for people's participation and provide no mechanism for the consideration of actual needs and desires. It was the author's belief that the problems of the processes did not lie at the surface, but were founded in deeply held attitudes and principles underlying the processes. It was therefore decided that the research should take a broad and detailed look not so much at the design processes as they are, nor directly at the implications of such processes, but rather at these underlying principles to planning and design, and their relevance or otherwise to the people affected by them. It was the intention of the author then to lay the basis for guidelines for more relevant planning and design which would find its heart in the people.

It was decided to begin with a survey in Chapter One whose aim was to gather information about how people themselves understand their environment.

The results of the survey confirmed that people held rather contradictory attitudes about their city. They showed also that among people involved in this survey there is quite a considerable uncertainty and dualism in terms of what they like and do not like in aspects of the urban environment. On reflection, the author would suggest that the P.C.P. research methodology as used in this research has certain limitations. Some of the observations and conclusions

drawn by the author from the interviews were not captured by the computer analysis packages. In hindsight, the author might have preferred to return to the data at least to support his readings, but time did not permit (ref. Appendix 2).

The survey indicated a number of key factors which should be addressed in association with any development programmes, the need to study these key factors in a way that reflected their relation to each other led to the particular research methodology and the direction the thesis took.

One alarming point from the results of survey in Tehran was the weak sense of belonging that people expressed in their responses and the absence of reference to the present. The author interpreted this as an expression of dissatisfaction or maybe even alienation from the present. It was noticed that the interviewees' perception of the environment tended to be associated either with the past which is represented by traditional figures or the future which is presented by modern and Western images while it would be difficult to assert that either was fully accepted. The implication that people are experiencing a kind of historical discontinuity or cultural disruption was confirmed by the fact that at present they are not getting what they expect their culture to offer them within the built environment.

The failure of the modernisation programmes in satisfying the people's perceived needs in spite of the generous facilities, innovations and many new physical qualities that they offer, was considered by the study as an important indicator. It shows that it is not only important what is built but how people perceive it.

It was suggested and discussed in Chapter Two that people have inherited their inconsistent

attitudes as part of the legacy of the various political changes that have occurred in the country. The study argued that the modernisation programmes and their implementation by successive Iranian governments have failed in their initial pursuit and the development of the country has been heading towards a sweeping away of its valuable cultural resources. These resources might instead have contributed substantially to a more genuine indigenous development and a stronger presence and participation of people in the creation of their own environment, and their potential for that should now be realised.

Chapter Two was therefore dedicated to a review of the history of Tehran and its urban developments alongside continual social and political changes. The examination showed that there have been both external and internal factors which set the bases for the development of these problems. In terms of the internal factors these were the tendencies of the various rulers towards dictatorship and ultimate power. External factors were related to the interference of international powers in the affairs of the country and the imposition of values and styles which were alien to the local culture and people's social and religious beliefs. In order to accommodate these two forces a very strong centralist system was adopted by these rulers in order to facilitate their various programmes and personal interests.

The study therefore shows that there is a misalignment between people's perceived needs and the physical structures they inhabit, and has explained the development of this misalignment in historical and political terms.

Part Two of the thesis begins by looking at Holism. It was felt that if the major finding of Part One was the severe physical and human fragmentation of the city, then an approach which centred on unity and interconnectedness would be a good area to start in. It should be

remembered that the aim of this thesis was to establish a theoretical framework for a more relevant approach to planning and design. The validity of this aim was further confirmed by the study itself, which led the author to restrict any practical outcomes to the presentation of guidelines and suggestions for further research.

It was suggested that the deep rupture which has developed between people and their indigenous environment applies not only to Tehran, but to many cultures which have developed according to the simplistic application of Atomist and Reductionist principles. Chapter Three is a review and critical analysis of a number of schools of thought and philosophical traditions of the West and the East with the aim of demonstrating how these schools have influenced the development processes of the environment in general and to find how an holistic approach might form the basis for a more appropriate approach. The study argues that many modern and contemporary design and planning approaches are deeply influenced by these philosophies which are contributing to the emerging phenomena of dualism because they are based on global typologies that have no bearing for people or their cultural and symbolic values in their local environments. The viability of an holistic perspective was identified through the analyses of key theories and views of eminent thinkers, philosophers and modern scientists who have confirmed holism from reflecting on their own academic, practical and scientific experience. The study also draws from a number of cultures and their world views and semantic systems. The holistic nature of the relationship between people and environment within the cultural context was explored. The conclusion was reached that development approaches can and should take an holistic approach, that this implies the study of a range of cultural values which collectively constitute the whole. The idea was to show that considering the atomistic view in human and environmental studies did not work properly and, with the emergence of General System Theory and Quantum Theory,

now is an appropriate time to go back to the idea of the whole after decades of experience gained in reductionist approaches. This is even more the case in Eastern societies like Iran in which the holistic background is still very much available.

The question at the centre of Part Two was that since Iran has been known to have had a rich culture throughout its history, what has happened that people have started to experience isolation from this culture? The three chapters making up Part Two were dedicated to answering this question by exploring areas such as cultural integration and holism of the people-environment phenomenon. The aim was to search for sources collectively building a theoretical perspective to guide the elaboration of an indigenous development approach. It is important to restate here that the thesis did not intend itself to put forward a full and detailed practical programme or a structure for such an approach. This task was left to be carried out by those who have responsibilities in dealing with planning and design policies or decision making. **The main task of the thesis therefore was the identification of an attitude which would have a strong impact on the way we perceive design and planning tasks or their implementation, and the initial development of guidelines and areas for further research which would provide evidence for or against the validity of that attitude.**

Chapter Three is intended as a review of some of the scientific views based on a reading of atomism and Newtonian (Cartesian) ideas, and an examination of the reintroduction of holism as an approach which was already there but has been ignored for some time. The idea of holism receives support from many schools of scientific thought such as General System Theory, Structuralism and Quantum Theory although it has been a basis for philosophy and world views throughout the world for centuries. Religion itself has a strong role for the

establishment and continuation of the idea of holism in human societies by which everything is related to one God so there is a unity in the universe in spite of apparent diversity.

If holism is already there, as a result what scientific theories in environmental studies have done is to create artificial boundaries, classifications and separations, and then to recombine them as aggregates and systems, which, although it solved some problems and created other opportunities, has also led to very many other problems. The main idea of using scientific ideas in environmental studies was the standardisation and then globalisation of related issues. This movement was in opposition to existing relativity and contextualist interventions into the environment. The relativistic and contextualistic way of dealing with the environment was and is the basis for unification between people and their surroundings through local knowledge and meanings. Chapter Three indicates that the problem in Tehran, and maybe in all other similar cities, is the philosophical basis of global theories, decision making, and ignorance of local relativistic knowledge, so every environment has its own local meanings.

Chapter Four is devoted to the study of culture itself and its transmission through the physical mechanics of the human mind and faculties, through perception and cognition. Particularly important was the introduction of key theories on the nature, structure and evolution of culture and how it demonstrates itself in the environment through artifacts, behaviour and language, which carry with them deep structure concepts of the society. The study re-asserts cultural relativity and argues that different cultural groups see the world differently. The natural implication of this is the sustainability of world diversity. The tendency, the study argues, in the current development programmes and design approaches is to apply global solutions which do not only make the world quite similar but suppress the real meanings and forces inherent in the diverse societies. Culture was identified as a "bounded structure of

relativistic local knowledge", which was supported by views of recent scientific theories particularly in psychology as well as those related to the environmental studies. It was argued that this perspective on culture allows for a much broader understanding of the formation and perpetuation of culture in the environment, and can provide a basis for further development and research into the prototypes and structures held by local societies as their world view. Prototype theory asserts that the environment consists of structures which have been developed to encompass the cultural interpretation used to recognise and identify various elements of the environment and their relevance to the group's knowledge structure and symbolic values. It was argued that organising the built environment according to cultural values and norms will sustain a specific culture's lifestyle which will lead to the strengthening of knowledge about the environment.

The chapter was dedicated to establish a constructive definition and explanation for the concept of culture. In this chapter, by referring to the Persian language as well as different theories and ideas about culture it was proved that culture is local and relativistic knowledge through which both the environment and the conceptual meaning of it in the mind can be shaped. People, leaning on cultural knowledge, have been able to evolve along with the environment, communicate with it, store information and knowledge about it, and transfer their experiences to future generations. Examination of theories about the human mind and the mechanisms of perception showed to what extent culture and mind are involved with each other. People, in order to survive, to live in society and to move towards ideals, need to understand their environments. Culture arranges all the proper relations which should take place in a society. The nature of culture creates an evolutionary balance through which a society can survive. Culture is also responsible for making a connection between past and present as well as present with the future. Cultures are locally shaped and evolve so they

respond to local properties such as world views, religion, cosmology, ecology, history etc. Because of this interrelationship, environments such as the built environment, in itself is part of systems that are involved with their transmission. Culture is a package of knowledge which is embodied as codes throughout the environment. Part of this knowledge is naturally embedded in the built environment. The quality of the environment also is in people's minds as well. In an ideal situation whatever is in the mind should match with whatever is in the environment. It is not a mutual relationship however between mind and environment. There is a huge structure informing the mind and fashioning the environment in terms of language and symbolic systems, social structures, behaviour, social values, history and so on. The ideal situation is one in which the environment, structures of knowledge and the mind should be in concert with each other, and not in conflict. The more integrated the different aspects of the culture, the richer the environment due to the legibility of the interrelationships within it.

Perception is the process of gathering of information about the external world and cognition is the storage of part of this processed information which later will be the basis for gathering and interpreting new information. Although the built environment is one of the resources for this vital information, it is not the only one. The knowledge about the characteristics and qualities of the built environment is related to various and different resources such as value systems, religion, belief systems, mysticism, ecology and so on. Therefore, encoding and decoding of the cultural knowledge into and from the environment is a key point in people-environment interrelationships. This subject and the mechanism of decoding-encoding was the main content of Chapter Five.

Following on from the discussions so far in Part Two, Chapter Five develops the idea that people-environment relations take place through symbolic meanings. The human mind has

the capacity of receiving information about elements in the environment through different senses and from different sources. Some of this information is later used for communication with the surroundings. The main point is that whatever is in the mind and whatever is being perceived from the environment has something to do with 'meaning' and 'meaningfulness'. So what are continually and systematically moved from mind into the environment (shaping the environment) and from environment to the mind (being shaped by the environment) are symbols, verbal and nonverbal. Integration via communication between people and their environment is possible through symbols, symbolic systems and the process of symbolisation. These faculties are different in different societies, even sometimes when they apparently match. This is because symbols emerge as a result of a complex associational process in which each element relates to a network of other concepts and aspects of a given society.

The other point is that the meaning of an element in the built environment is not just dependent on what the designer or builder has intended to put into it but also what people have already in their mind. This again indicates that the meaning of an element in the environment is dependent on its related context and on the perception and cognition of the viewer, i.e. although the creator has put his own meaning into the element, it might be perceived by people from different cultures in other ways. Both verbal and nonverbal symbols work together over time to establish a network of related meanings. All this means that firstly, communication and recognition with and of the environment is possible through the network of meaning in each society; and secondly, the real meaning of any element in the environment is related to its context. Thirdly, we cannot and should not ignore local meanings, because they hold more information than may be immediately apparent. For instance, to ignore the concept of shadow, 'sayeh', might lead to buildings which are totally illogical and hothouses, while traditional Iranian houses make the best use of shadow they

can and centre their buildings in part around the concept of 'sayeh'. Symbolisation is a vital tool for the communication of biological information as well as social values and expected behaviour. It helps the unity within a society and is the way to transmit knowledge through generations, through words, images, sounds etc. The message of these statements is that symbolic meanings should not be changed but should evolve from within. In other words, successful plans and designs are those which develop the environment in a holistic cultural method by which the environment evolves through the appropriate use of its related symbolic meanings.

The thesis concludes the last chapter by introducing a comparative philology of the differing meanings of some environmental features within different cultural contexts. It was suggested that there are deep semantic configurations and extensions of verbal and nonverbal meanings that are not easily transferable from one culture to another, that each symbolic system is strongly affected by the presence of various local phenomena. Parallel to this is the suggestion that there is a similar fragile semantic extension and use of the architectural and urban forms within every local culture. However the pressures of globalisation have forced many indigenous environmental patterns and functions towards the forms associated with the industrial countries. It was questioned whether the imposition of these more recent patterns in Iran has ever been appropriate.

2. Overview

The overall view expressed in the research is that a city is not just an aggregation of physical objects, it is a structure in which people's thoughts and cultural knowledge, language, behaviour and hopes are strongly integrated with the environment in a holistic way. It was

evident that whatever the politicians and decision-makers had in their mind, Tehran City is far from fulfilling such expectations. So to see the problem in its own context it was important to find out where these problems came from, how uncertainty and perceptual dualism were initiated in the first place and what systems and processes perpetuate them.

This research generally shows that Iranian society, in terms of its environmental development, has passed from indigenous development through a transitional period to modernisation. During this time, political changes, internal and external, and the adoption of globalisation have acted as determining forces powering the development of the environment. In order for rulers to justify the colossal changes they made, they developed the idea that the Iranian culture and Islam were responsible for the country's retardation. Allied to this was the development of a sense of being behind the industrialised world and wanting not to be overtaken by it. Their solution was to look to the West as the best model for the ideal of progress and development. All the subsequent development programmes were strongly in favour of Westernisation, urbanisation and modernisation which were severely restrictive to the Iranian culture and its role in the development of the country. Attitudes have moved from those where society is involved in relativistic decision making systems to an era of standardisation and professionalisation across the globe. Central governments started to introduce strict measures to control urban development and as a result design and planning education and implementation policies were centralised and located under direct government control. The increase in the price of oil, and therefore increased spending power and the excessive passion of governments for rapid modernisation have led to further the ignorance of the social and cultural needs of the country and of the people's role in these development programmes. The situation in Iran now is one of an assessment of this process, of everyone - people, politicians and professionals - questioning, of uncertainty and confusion, somehow

held within inherited systems and structures. Urban planning has a vital role to play in this assessment and in the development of a sustainable new approach.

Iranian society is keen and eager for development, so it is not a matter of a call for a return to the past. Development is demanded by everyone, and although people regard the past with nostalgia, they recognise it has gone; the current situation meanwhile falls far short of their expectations and they are uncertain about the best direction for the future, all which makes the present untenable.

From the 1700s onwards, the philosophy of the society in Iran moved from a traditional, vernacular, culturally and religious based attitude to one which has, in some very influential sectors, adopted atomism and reductionism, and this change in thinking has filtered down into aspects of everybody's lives. With this came the introduction of new standards and ideologies that succeeded in suppressing the indigenous culture and creating a sense of alienation among people of their own values and beliefs. People started to look at their own environment as an object which belongs to certain point in history rather than being immersed in it as a part of their experience of life. The study argued that this was the beginning of the disintegration of the relationship between people and the environment which has left strong influence on people and the way they view their cities, their culture and even themselves. Discrimination begun to be made and divisions supported between the objective and subjective, things and feelings, people and surroundings, science and the humanities, etc. This prevailing divisionist attitude has led to a recognition by thinkers that Tehran has arrived at a state of fragmentation and disintegration and that this way of thinking is no longer sustainable. This has paved the way for the development of an holistic attitude.

Holism is seen as offering a different perspective which unites and talks in terms of process and structure rather than elements. The past is incorporated into current-day thinking as a part of the process, as a contextual reading of the environment. The evolutionary development which takes account of context is quite different from the atomistic view which saw time as isolated incidents and 'slices' of experience, and saw people and their contexts, e.g. the environment, as individual disconnected elements.

The research's findings from the areas of philosophy, environmental studies, culture, perception, cognition, and symbolisation reconfirmed that these are not independent 'things' and that the environment, including physical forms, is a process in which all these factors are involved.

Towards the end of the thesis, the importance of symbolisation began to emerge. The academic study of symbols which has typically concentrated on symbols of kingship, religion, bureaucracy and finance has been researched from the point of view of art, aesthetics and ethnography, related to emotions and a largely subjective attitude to external objects and their associated canons. But the processes of symbolisation and people's needs of them have been less regarded, and the idea that symbolisation is critically related to everyday life has been largely ignored. Symbolisation, it is argued in this thesis, is a process of giving meaning to things and perceiving those meanings. Symbols are the embodiment of what is important in everyday life, they form a communication system which is the basis of sustainability. Appropriate symbolisation therefore is vital to the continuance of any culture.

The proper attitude to the environment is one which allows for this appropriate symbolisation and the process of its evolution. The objective of this thesis is to say that a successful

environment is one which allows and supports the continuance and evolution of a sustained symbolisation process which is meaningful and gives a sense of belonging, security, potential, and self-realisation to the people. Such intelligible environments create a holistic opportunity within which there is minimum contradiction between people and their environment. People and the environment are then one rather than two, so that the environment becomes a part of the process of evolutionary development of the whole society. The integrated environment can be given the analogy of a book which people not only read but of which they are also the writers, thus the reader/writers shape themselves, the environment and the culture for future generations.

This means that the environment will not be regarded as a commodity to be used and destroyed when it is not needed. The environment then is a part of a living learning system which makes people aware about themselves and their resources, their values and their identity. An environment appropriately symbolised would be a considerably more sustainable environment than is possible under the present circumstances because sustainability can not be achieved without a sense of belonging through symbolisation. Symbolisation is therefore a very practical and efficient way through which the realisation of a cultural/holistic approach to environment development can be achieved.

In order to put these ideas and theories into practice an appropriate methodology is needed. There is a need for guidelines and further research, which will be discussed in later sections, and these practical considerations should be based on an appropriate methodology.

The next section is dedicated to the methodology used in the thesis. This is introduced in advance of the guidelines and suggestions for further research as the method has some

bearing on the approaches and intentions behind such research. It is also hoped that the methodology will help people in both decision making and practice.

3. Methodology of the Thesis

Although this thesis started with an essentially empirical research exercise examining the people in Tehran in terms of their perception and the way they interpret their surroundings, the same methodology was not continued into the examination of the problem itself. One reason for this was that, even if the interview technique had allowed for an historical and theoretical discussion, the people in Tehran have no detailed experience of involvement in environmental development issues and so could not have given all the information needed to explain the problem. A second reason was that the author believed in the value of a contextual way of examining environmental phenomena. In other words the intention was not to find out only **what** the problem is, but also **how** the problem is, and to look for clues as to how it might be solved.

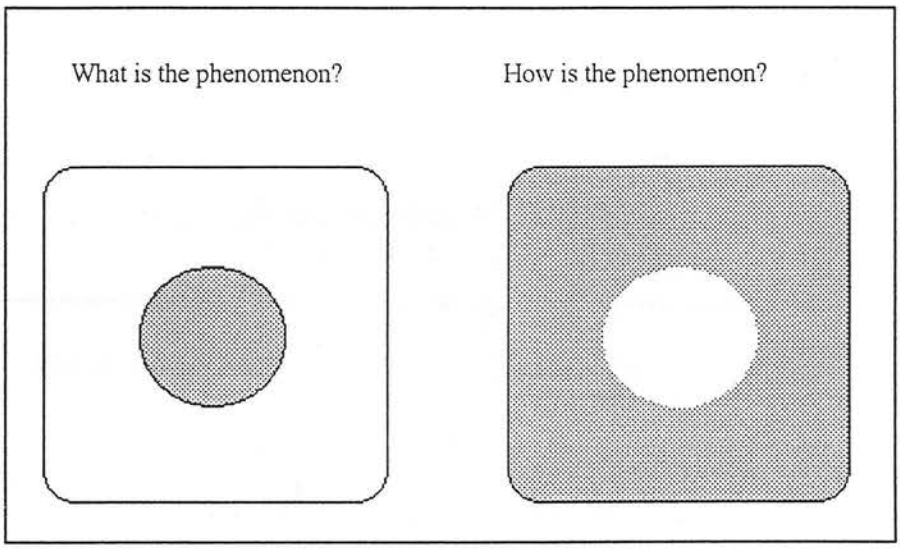
The thesis aimed to develop a methodology to meet these criteria. In the course of this thesis a method began to be identified and is here described as 'Diachronic Method'. This is at its early stages and will itself require further research. It is suggested that this approach might be valid both for academic research and as a planning and design technique.

Diachronic Method is concerned with the gathering of contextual knowledge as to how a certain phenomenon is or inter-relates with its surroundings, rather than looking at it in isolation from them. It holds to a belief in reality as a wholeness, a process forever undergoing transformation; at the same time it assumes a value in scientific inquiry as well

as philosophical thought. There is an implicit assumption that its findings should be useful in practical and observable development.

It is believed that this methodology can give a more real sense of the problem than other methods, more information to tackle the problem and more opportunity for the identification of further research. It does not follow the pattern of creating a theoretical framework, putting forward hypotheses and then examining them through a case study, the idea is to highlight the context, using different theories and ideas, to give room for the problem to emerge in that context. The following diagram might help explain the difference between the two methods of examining one phenomenon.

Figure (Con.1) - Comparison between two approaches to a methodology



Source: Barati-Stevenson (1997)

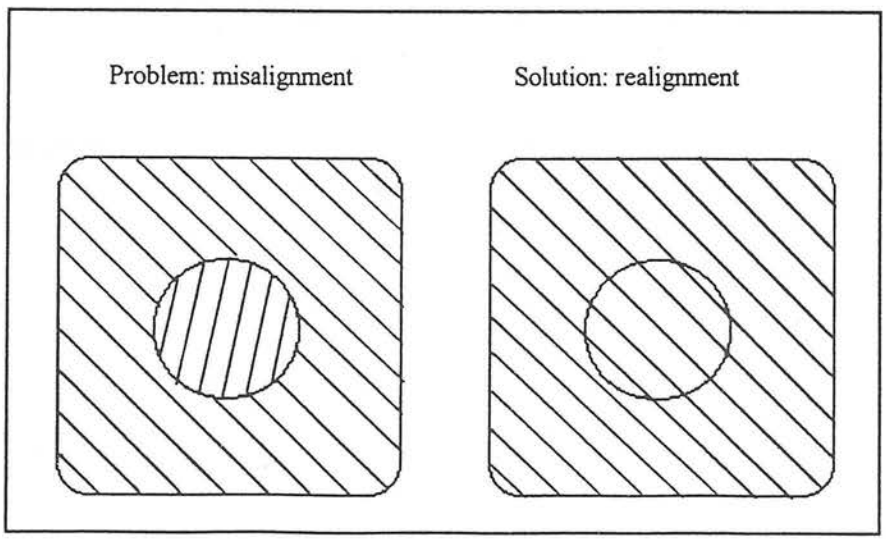
It is important that the researcher looks from the problem outwards, to be sure that the research is kept close to the problem and to prevent the research from ranging too far from the centre. It should be a discussion of the problem in the context and the context must

always be seen in terms of a continual flow across space and through time.

The aim is to research a variety of methods from all disciplines which will help in understanding the problem's causes and supporting systems, in the broadest sense. It is not enough to explain a problem or to come to an answer; the aim is to work towards finding means appropriate for that time to transform the problem into the potential for self-repair, to get to a process by which the problem finds indigenous growth out of itself from being a problem to having the potential to move on to a new stage in the process. It is also a matter of finding the obstacles to movement which are restricting this natural flow and of identifying methods for removing those obstacles.

The following diagram illustrates the aim of Diachronic Method in the resolution of problems:

Figure (Con.2) - Diagram illustrating the approach to Diachronic solutions



Source: Barati (1997)

4. The Use of Diachronic Method in this Research

Identification of Problem The research began with a question rooted in experience; a case study was chosen which used an objective technique from the discipline of psychology; the analysis of the qualitative and quantitative results then led to the emergence of a defined problem, which was researched from historical and political perspectives.

At this stage it would have been possible to present a thesis based on further analysis of the data referring to recognised methodologies. However, it was decided that, according to the needs of an holistic, diachronic method, the detailed analysis of data does not in itself provide a comprehensive enough understanding from which to find bases for action and change and further study was undertaken. This thesis is seen as one step in the testing of this method.

5. Guidelines for a New Approach to design and planning using a diachronic holistic approach

To achieve an holistic / cultural environment the most important recommendations are related to the removal of obstacles from the way of its emergence. The main areas that should be considered are the philosophical basis of thought, policy making, symbolisation systems, education, and the process of planning and design. Above all a diachronic holistic approach is an attitude which helps the answer for problems emerge from the context itself rather than from outside.

The guidelines for a new approach that arise from this study are presented here under five headings: Holism, Policy Making, Encoding and Symbolisation Systems, Education, Planning and Design Processes.

* Holism

The idea here is not to build a holistic way of thinking but to provide a situation within which holistic approach can emerge. Following are some example of ideas which should be considered:

* An holistic approach to environmental development is not a model or formula, it is a way of seeing, perceiving, and understanding. It requires a perception of the world as everything related to everything else.

* A diachronic holistic approach to the environment requires to see culture as the central factor for development. Every culture seeks for itself a kind of balance because it is always derived from nature. Culture is a dynamic, sustainable, unifying process. In the holistic view the built environment should grow out of and within this process.

* Every element in the built environment should be defined not only by its characteristics but by its relationship with the whole.

* Nothing can have meaning in the environment, as a whole, unless it is seen in the context of the whole. The meaning of the part will be completely different when it acts as an ingredient of the whole from when it is isolated. Separated independent parts are meaningless.

* Oneness and unity between subject and object in the environment can be achieved through meanings and contextual symbolisation.

* Wholeness is a law of systematic composition which governs the transformation of the systems that it structures. The whole is not the sum of the parts but includes their transformational relations and their special order. So the arrangement of the parts in a structure also has a crucial role.

* Policy Making

One of the most important tools for the implementation of a diachronic holistic approach is the policy making system and an early effort needs to be made to address the policies and decision making systems based on an holistic world view. The following examples give an indication of the means by which a new approach might be introduced.

* In Iran the definition of urban development is still old fashioned and out of date in which it is seen merely as physical change and the use of more advanced technology and facilities in cities. Because the present definition of urban development is not based on indigenous process, the concept of urban development should be redefined. There is a basic need to revising this definition in a way to include the improvement of people and culture and environment all together. The intention here is to have a comprehensive understanding of environment taking in account the broader and more holistic dimension of culture and its various implications.

* Tehran should be reintroduced to its dwellers, through media, museums, exhibitions,

education, etc. The city is now so large, and unoriented that people neither are aware of the city nor the nature of its areas.

* There should be clear, and comprehensive legitimate 'citizens rights'. All the people should be explicitly and completely informed about their rights in terms of the responsibilities of themselves as well as governmental bodies in areas such as citizenship, decision-making, city management, etc.

* Traditional methods of managing the neighbourhoods or quarters of Tehran should be re-examined to see how they might be relevant to the present situation. Responsibility for this could then move partly away from the municipality to the people themselves. The target should be the achievement of unity of the city which has been destroyed for decades.

* An important action would be the revival of the concept of quarter 'Mahala`. This could be done receiving help from people themselves in terms of recognition of the boundaries of each mahala etc.

* The municipality should begin to change its basic practical policies, from a centralistic one-way top-bottom political system to a system of mutual responsibility between state and people to make opportunity/space for symbolic systems to work.

* The buildings which are built by government and large organisations should lead the way in following the cultural and local attributes.

* Encoding and Symbolisation Systems

Symbolisation of the environment is the implementation of a society's world view in organising that environment. This is an inevitable process which creates an opportunity to read a culture and also to enrich it. The development of symbolisation system are therefore directly influenced by a culture and also directly shape it. It is one of the most active and dynamic informing processes available to planners and designers.

* Responsibility should be taken for the fact that intervention in the built environment is about **encoding** by the decision-makers, planners, designers, and **decoding** by users. What makes this process successful is a close relationship between encoders and decoders. Designers and planners should be made aware of this. This communication between planners and designers with the people, through built forms and functions in the environment, can be obtained through a set of shared symbols and meanings.

* When people build their environments they symbolically show who they are or who they would like to be. Shaping the environment is shaping the self and identity.

* Physical environments should be the containers and spatial forms of cultures and related beliefs and rituals.

* Communicability and legibility of the built environment go back to the need for sharedness and the same language between planners, designers, and users.

* Symbolic meanings are relative to their own environments.

* Culture needs to be practised in order to evolve. People also need to practice their culture. Both of these need an integrated environment to make this possible.

* As well as being practised, cultures should be carefully and thoroughly studied.

* The built environment should be treated as part of the culture to the same degree as language, rites and rituals are and should not be in conflict with them.

* People as the main owners, producers, conservers, and protectors of culture should be given the chance to exercise their culture and symbolise their surroundings. Otherwise a huge cultural gap and social problems can develop as with Tehran at the moment.

* If we accept that the environment has a major role in terms of presenting, sustaining and carrying the culture, then encoding it with wrong or irrelevant information will make the new generation confused about their culture and their identity. It can also leave them with no sense of belonging and no responsibility for culture or environment.

* The meaning which one generation puts into the environment is absolutely necessary for cultural transformation. New generations need this information to join to the existing culture and society and this is vital for environment sustainability.

* The external world has a relativistic meaning based upon cultural knowledge. Perceiving the built environment is a systematic comparison with and modification of already processed stored information about the environment and is the process of making things, events, objects, etc. meaningful. To do this one has to have one's own believed meanings which

means one sees the external world as one has to see it according to one's value systems and culture. These meanings already are related to the environment itself.

* Successful planning and design is ensuring the flow of the local cultural meanings within the society and through time.

* A successful built environment is an environment which is the result of a cognitive unification/approach between producer and user.

* Symbolic systems are the result of a cognitive process whereby an object or event acquires a connotation beyond its instrumental use. Symbolic systems help people to understand the world and to form it as a meaningful entity.

* Rituals, and customs symbolise the built environment so they should be planned so as to respond to each other. Rituals can be considered as one of the sources of finding meaning of the environment.

* Every society`s reality is the way it symbolises the external world.

* The significant point is that what works effectively and basically is symbols and symbolisation. Changes in laws, regulations, or official structures will work only if they have symbolic meanings and a symbolic tangible result. Before considering any action or making any changes the symbolic influence should be considered.

* The system of creating symbols and symbolising the environment will not work properly

unless the people, as the users of the environment, are given the opportunity to get involved with the environment on all levels in one way or another.

* Local language should be used in local planning and design and where it is possible new terms should be suggested for new functions, spaces, and so on. This might be on a national or very local scale. For instance, all the urban function in Persian language should be drawn out and used in new ways. It is also possible to associate new concepts with these kinds of expressions and words. These functions should be named/expressed by using Persian language properly. Park-e Laleh, for example, can be called 'Golestan-e Laleh' and so on.

* Local symbols and their associations should be studied, recorded, and continuously examined.

* Education

Education is one of the key tools which could change the attitudes of the people, decision makers and planners and architects. Achievement of a working holistic attitude cannot be made without the continual support and promotion of a holistic basis to education. It both informs and sustains. The education system, formal and informal, should itself be holistic and the content of what is taught should also be holistic in nature and expression. Examples of holism in education are:

* Education should be about awareness of the environment and the role of people in their environment. It should start from primary level to show the children the holistic nature of the environment. The changes called for will naturally differ according to the education systems

in any one place, but the main strategy might be a move away from memorising and only book based studying to including a direct involvement with the tactile, visual, and other sensed information of the world.

* There should be regionalisation of planning and design education, based on common and regional interests. Education based on local knowledge should include local ecology, local resources, local history, local cultural knowledge about environment, language, rituals and so on.

* People should be encouraged to get involved with the environment from the beginning. They have to know how to communicate with the decision-makers, planners, designers, and architects. They also should be encouraged to take responsibility for their own decisions and their consequences not only on themselves but the others.

* Environmental studies students should be encouraged to see the environment as a whole, consider things contextually, and consider the semiological evolution of the environment. This can help them to evolve the environment rather than change it.

* An holistic education system would be availability to education resources to everyone at all stages in their lives and at different levels of learning. It is the open accessibility of a variety of teaching and awareness programmes.

* A city is a university of interaction between knowledge, the culture, and the external world through perception. The knowledge by which people organise their individual and social life should be embodied naturally in the built environment. The planning process needs to offer

space and time for the cultural knowledge to be applied.

* Any planning and design project should be considered as a unique opportunity for education and improvement of all parties from decision-makers to users. The plans for city development should be the result of the experience of interaction between different parties in intervention with the environment. The objective here will be development of people and environment all together.

* Using new technologies within the built environment should be encouraged if appropriate, but should be introduced carefully to allow people to clearly understand and symbolise it.

* Students of environmental studies should be familiar with the mechanism and importance of symbols and symbolisation. They should be encouraged to learn how to see symbols, to respect them, to introduce and create them, and to consider them in their plans and designs, that planning and design is about encoding and decoding the materials, spaces, etc. with symbolic meanings. The meanings which are used in this process should have local roots, be understandable, and be connected with the present symbolic meanings.

* There should be continual research about the way the environment is perceived, the level of communication between people and built environment developments and the perceived state of the society.

* Environmental studies which start from atomistic views should include a setting of the context with courses in holistic views.

* The holistic approach to the environment and its importance to culture should be acknowledged in all courses and subjects particularly the ones which seem very isolated and apparently independent.

* Planning and design activities should not be separated from other studies, e.g. social studies which affect them. Equally, holism should be part of education in all subjects because at the end of the day all subjects will affect the environment in one way or another.

* Recent developments have been concentrated on the replacement of local cultures and knowledge with standardised education and regulations. This movement should revert to a situation in which cultural knowledge dominates people-environment interrelationships.

* Planning and Design Process

In an holistic view, planning and designing is seen as implementing the world view through encoding and symbolisation. The following are just a few examples of the approach to planning and design processes through a diachronic holistic approach:

* Diachronic method, introduced in this research, should be considered as the basis for development of a design process.

* In non holistic based planning process people are seen as something different and separate from the built environment. This misunderstanding of the relation between people and environment has led to a huge failure in planning and design worldwide. Balance and harmony in the environment will only be achieved through seeing environment and its users

as united. The result of ignoring people as the users of the built environment and imposing ideas and solutions, will be against balance and harmony in the environment.

* Post occupancy studies should be held and planners and designers should have continued responsibility for their projects into the future.

* Part of the budget for urban developments should be used in research about the result of plans and designs to find out to what extent they have been successfully applied and implemented particularly in terms of their influence on their users.

* If the built environment is imposed on a society, particularly when people are excluded, there is no opportunity for indigenous thought to grow and develop. This will be a huge danger for a sustainable life for a society. Therefore, building and developing the environment should be seen as an important stage of development of 'thought' and the ability to make proper decisions in a society.

* Sustainability is something local rather than global, although the consequences may be global. This localness is related to the 'culture' and 'relativism'. So sustainabilty can be defined as local/indigenous cultural awareness about self in the environment. This kind of relation provides a continual consciousness for people about themselves in, and as part of, environment. It also helps people to see themselves and the environment as one rather than two.

* Built forms should respond to social life and provide opportunity for its continuation and evolution. Ignorance of social life when developing the built environment will be a waste of

resources. This ignorance can lead to both disturbing the social life and misusing the environment, e.g. built form which underlie the basis of sustainability.

* People should be considered as the main part of the process of urban evolution.

6. Further research

This new approach requires a lot of further research across many dimensions and subjects. The following are a few areas of research relating primarily to symbolisation and people's participation.

* A similar exercise should be carried out using the same techniques among the policy-makers, planners, and designers in Iran to see whether they make the same associations between physical environment and subjective cultural issues. The result would have a significant influence on environmental research at least in Iran.

* A wide research in Tehran is necessary to find to what extent the people have the same feelings and understanding about the city. It is also necessary to find out why people make connection between some aspects in their environment with the concepts of Eastern, Western, God, identity, etc. The P.C.P. research technique can be used as a helpful technique in this research, both using the packages and techniques employed in this research and also other more qualitative techniques such as are continually being developed and published by researchers.

* All the key elements in the environment such as house, city, green space, street, quarter, neighbour, and so on should be examined to see what is associated with them. It is also important to research about how they are associated to each other.

* The features, configurations, shapes, forms and patterns which can be identified locally as being Iranian and belonging to Tehran region. These might gradually be used to modify the

global patterns in Tehran. In any urban developments such as planning and design the appropriateness of these attributes should be studied.

* What is missing in terms of what makes Iranian space ' Iranian'.

* Research about the legibility and relevance of indigenous and introduced symbols in different designs.

* Research on globally understandable environmental symbols and their possible associations.

* Cross-cultural studies about the significance of language in environmental perception: Similarities and Differentiations.

* Cross-cultural studies about symbolisation of urban spaces and urban life.

* Further research should be carried out into the influence of foreign words and expressions on people's perception of the environment and any relation to dissociation from their own surroundings.

* A cross-cultural study about the evolution of 'House' during history in different regions alongside the way it has been symbolised, e.g. in different languages. A semantic study about house objectively and subjectively.

* The same research about the concept of 'City'.

* The relationship between levels of sense of belonging and feeling of responsibility. For instance, if the state manages everything how this situation affects people's sense of belonging and the levels of responsibility they are ready to take and vice versa.

* A similar piece of research to the above, but concentrating on the role of symbols in denoting ownership and responsibility.

* The comparison between situations when people are free to contribute and put their own symbols and meanings to a particular place with when they are not and the symbols are irrelevant to them.

* Identification with the environment.

* The financial implications of the upkeep and maintenance of properties according to their relation with local culture.

* Human awareness in the environment, research about how people are in the environment and to what extent they are aware of this.

* Encourage people to look for evidence of the validity of the holistic way of seeing. Behaviour and planning can become holistic only if people see holistically, and to do that they have to want to do it. It therefore depends on actions which can be seen and assessed.

* Examples of experiments that compare the inclusion and exclusion of an holistic attitude:

* People participation; e.g. a children's playground. Compare the use of and attitudes towards a playground developed and built by the people who are to use it (of all ages, parents, children, onlookers, etc) with a playground built according to the normal planning processes. The experiment should continue into post-occupancy study.

*Compare the differences between a mosque which has been built taking into account local symbolic language and one which has been built based on global standards. The gathering of 'local symbolic language' would itself require research as to methods and appropriate techniques but, for sake of discussion here, might be based on local understandings of the laws of Islam, traditional building materials, verbal symbols (i.e. the associations people say they make with, doors, entrances, windows, spirit, behaviour etc), behaviour patterns, history and folklore, climate and natural land formation, etc.

* The development of a book such as 'A Pattern Language' (Chris Alexander 1977), for various regions within Iran, produced with the help of local people. This should be continually revised according to further research in the society (rather than according to theoretical or political ideologies) and gradually developed, it might become a reference resource for planners and architects.

* Research into the work of architects and planners who claim they are holistic, work in holistic methods or have models of holistic approaches. Post-occupancy studies on buildings and urban designs produced by such decision makers.

7. Summary

The fragmented environment is the result of a fragmentary way of thinking about the environment and its development.

If we refer back to the introduction, it is clear that there are three parties which are very important to the built environment - people, politicians and professionals. The research showed that there is contradiction between these three factions in Iran in terms of the ways they think and consider the built environment, their ideals and their methods, and that the result is manifestated in the fragmentation of the built environment. This thesis suggested that fundamental to resolving this fragmentation is the development of a framework so that these three parties can begin to think and act in the same context. For this to happen an ideology based on holism has been developed in this thesis which we hope will be implemented in practice and in further research.

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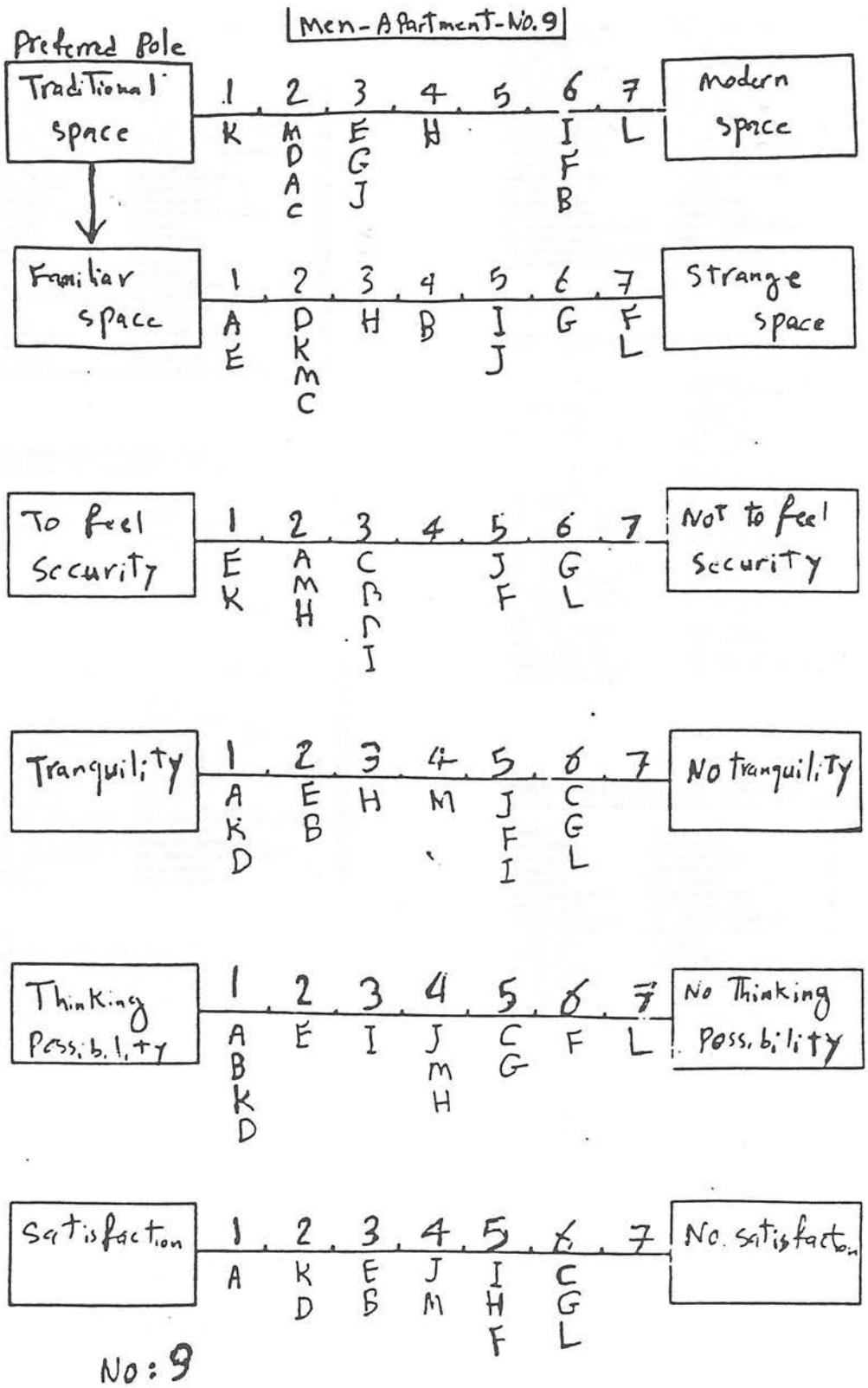
Appendix 1

Figure A1.1 - Example of respondent's answering sheet showing bi-polar constructs and ratings of pictures



Appendix 2 - Original Constructs Data

Men-Apartments (No.1)

POLE	/CONTRAST	VBL.
urban space	/residential space	1
more conflicts	/less conflicts	2
no relaxation	/relaxation	3
no working possibility	/working possibility	4
no comfort	/comfort	5
illness	/health	6
less dynamism	/more dynamism	7
urban space	/rural space	8
more modern facilities	/less modern facilities	9
more benefit	/less benefit	10
economy improvement	/no economy improvement	11
closed spaces	/open spaces	12
no healthy weather	/healthy weather	13
no tranquility	/tranquility	14
more success	/less success	15
lower social esteem	/higher social esteem	16
no welfare	/welfare	17
arid region	/wet region	18
depression	/freshness	19
no happiness	/happiness	20
no progress	/progress	21
not to help others	/to help others	22
good natural landscape	/no natural landscape	23
enjoyment	/no enjoyment	24
long life	/short life	25
more expirience	/less expirience	26
less mistakes	/more mistakes	27
green spaces	/residential spaces	28
no thinking possibility	/thinking possibility	29

Men-Apartments (No.2)

POLE	/CONTRAST	VBL.
traditional	/modern	1
familiar spaces	/strange spaces	2
scurity	/no security	3
tranquility	/no tranquility	4
thinking possibility	/no thinking possibility	5
satisfaction	/no satisfaction	6
useful working	/not useful working	7
private spaces	/common spaces	8
more action freedom	/less action freedom	9
no envi. pressure	/envi. pressure	10
better dicision making	/no good dicision making	11
progress	/no progress	12
to be useful	/not to be useful	13
mixed with nature	/artificial environment	14
alive environment	/not alive environment	15
not hostility	/hostility	16
relax	/no relax	17
eastern archi.	/western archi.	18
emphasise on society	/emphasise on individual	19
more share feeling	/less share feeling	20
more co-operation	/less co-operation	21
efficiancy	/no efficiancy	22
closed spaces	/open spaces	23
limitation	/freedom	24
to feel alive	/not to feel alive	25
good deed possibility	/no good deed possibility	26
rural envi.	/urban envi.	27
having naive personality	/complex personality	28
social relationship	/no social relationship	29
juiciness	/depression	30
arid region	/wet region	31

Men-Apartments (No.3)

POLE	/CONTRAST	VBL.
traditional	/modern	1
cordiality	/no cordiality	2
health	/no health	3
peace in mind	/no peace in mind	4
tranquility	/no tranquility	5
better life	/no better life	6
residential	/no residential	7
to be with family	/not to be with family	8
belonging	/no belonging	9
perfectin	/no perfection	10
satisfaction	/no satisfaction	11
religion	/no religion	12
god satisfaction	/no god satisfaction	13
be delivered	/be not delivered	14
goal achivement	/no goal achivement	15
pollution	/no pollution	16
no relaxation	/relaxation	17
no planning	/planning	18
human relationship	/no human relationship	19
understanding others	/no understanding others	20
solve problemes	/no solve problemes	21
strange envi.	/familiar envi.	22
no human feelings	/human feelings	23
no confidence	/cofidence	24
improvement	/no improvement	25
welfare	/poorness	26
artificial life	/natural life	27
comfort	/no comfort	28
historic	/present	29

Men-Apartments (No.4)

POLE	/CONTRAST	VBL.
no modern building	/modern building	1
no tranquility	/tranquility	2
no comfort	/comfort	3
wasting the time	/not wasting time	4
less education	/more education	5
no security	/security	6
no progress	/progress	7
no peace in mind	/peace in mind	8
thinking possibility	/no thinking possibility	9
sustainability	/no sustainability	10
religious space	/no religious space	11
rural life	/urban life	12
wasting energy	/no wasting energy	13
no poverty	/poverty	14
closed space	/open space	15
private space	/common space	16
no human relationship	/human relationship	17
not easy life	/easy life	18
no recreation facilities	/recreation facilities	19
less facilities	/more facilities	20

Men-Apartments (No.5)

POLE	/CONTRAST	VBL.
lower life level	/upper life level	1
no welfare	/welfare	2
no facilities	/facilities	3
more trouble	/less trouble	4
no delightful life	/delightful life	5
depression	/juiciness	6
faliure in life	/success in life	7
simple life	/luxarious life	8
less superfluities	/more superfluities	9
relaxation	/no relaxation	10
less energy wasting	/more energy wasting	11
goals achievement	/no goals achievement	12
common spaces	/private spaces	13
closed space	/open space	14
less thinking	/more thinking	15
spiritual abatement	/spiritual freshness	16
no creation possibility	/creation possibility	17
no solving problems	/solving problems	18
hard life	/easy life	19
traditional envi.	/modern envi.	20
more adaptation	/less adaptation	21
no satisfaction	/satisfaction	22
residential spaces	/recreational spaces	23
iranian traditional envi.	/western envi.	24

Men-Apartments (No.6)

POLE	/CONTRAST	VBL.
wet region	/arid region	1
tranquility	/no tranquility	2
longer life	/shorter life	3
pleasure	/no pleasure	4
more expicience	/less expirience	5
better life	/not better life	6
goal achievement	/no goal achievement	7
clean weather	/not clean weather	8
no illness	/illness	9
progress	/no progress	10
rural spaces	/urban spaces	11
no facilities	/facilities	12
no open mind	/open mind	13
bad decision making	/good decision making	14
large spaces	/small spaces	15
more adaptation	/less adaptation	16
no anxiety	/anxiety	17
more elevation	/less elevation	18
villa houses	/apartments	19
privacy	/no privacy	20
dependency	/independency	21
relaxation	/no relaxation	22
closed space	/open space	23
no efficiency	/efficiency	24
less productivity	/more productivity	25
no sufficiency	/sufficiency	26

Appendix 2 (cont.)

Men-Apartments (No.7)

POLE	/CONTRAST	VBL.
old buildings	/new buildings	1
less facilities	/more facilities	2
no working possibility	/working possibility	3
no satisfaction	/satisfaction	4
worse life	/better life	5
rural spaces	/urban spaces	6
simplicity	/complexity	7
enjoyable life	/no enjoyable life	8
happiness	/no happiness	9
self satisfaction	/no self satisfaction	10
hope	/disappointment	11
residential spaces	/exploration spaces	12
no recreation capacity	/recreation capacity	13
spiritual abatement	/spiritual juiciness	14
no thinking possibility	/thinking possibility	15
new ideas achievement	/no new ideas achievement	16
no improvement	/improvement	17
wet region	/arid region	18
greeness	/no greeness	19
ideal residence	/no ideal residence	20
more efficiency	/less efficiency	21
mountainous region	/plain region	22
landscape variation	/no landscape variation	23
no monotony	/monotony	24
not boring environment	/boring environment	25
no comfort	/comfort	26

Men-Apartments (No.8)

POLE	/CONTRAST	VBL.
water	/no water	1
good weather	/bad weather	2
juiciness	/depression	3
social relationship	/no social relationship	4
sound environment	/no sound environment	5
progress	/no progress	6
satisfaction	/no satisfaction	7
cultural development	/no cultural development	8
intensive area	/no intensive area	9
no comfort	/comfort	10
no peace in mind	/peace in mind	11
less innovation	/more innovation	12
less productivity	/more productivity	13
closed spaces	/open spaces	14
gloomy	/not gloomy	15
no welfare	/welfare	16
no foppishness	/foppishness	17
no perfection	/perfection	18
historical buildings	/modern buildings	19
no stability	/stability	20
no safety	/safety	21
agitation	/no agitation	22
no health	/health	23
not united community	/united community	24
dependency	/independency	25
arid regions	/temprate regions	26
industrialized	/non industerialized	27
no balanced society	/balanced society	28
no god achievement	/god achievement	29
no sound society	/sound society	30
green spaces	/no green spaces	31

Men-Apartments (No.9)

POLE	/CONTRAST	VBL.
apartments	/no apartments	1
security	/no security	2
no anxiety	/anxiety	3
peace in mind	/no peace in mind	4
comfort	/no comfort	5
open space	/closed space	6
less freedom	/more freedom	7
no efficiency	/efficiency	8
no progress	/progress	9
no bright future	/bright future	10
healty climate	/no healthy climate	11
more dynamism	/less dynamism	12
help the others	/no help the others	13
happiness	/no happiness	14
natural envi.	/no natural envi.	15
more energy	/less energy	16
more activity	/less activity	17
satisfaction	/no satisfaction	18
traditional house	/non traditional house	19
large spaces	/limited spaces	20
long life	/short life	21
intensive areas	/not intensive areas	22
expesive areas	/cheap areas	23
poorness	/richness	24
illness	/health	25
green space	/not green space	26

Men-Apartments (No.10)

POLE	/CONTRAST	VBL.
traditional	/modern	1
less free time	/more free time	2
no creation possibility	/creation possibility	3
less humanity	/more humanity	4
less supperiority	/more superiority	5
no satisfaction	/satisfaction	6
historic	/non historic	7
use of art	/no use of art	8
beauty	/no beauty	9
comfort	/no comfort	10
arid region	/wet region	11
no adaptation	/adaptation	12
no tranquility	/tranquility	13
no thinking possibility	/thinking possibility	14
common space .'	/private space	15
human relationship	/no human relationship	16
more cultural growth	/less cultural growth	17
perfection	/no perfection	18
more coordination	/less coordination	19
present future link	/no present future link	20
identity	/no identity	21
poverty	/welfare	22
eastern style	/western style	23
natural	/artificial	24
recreational	/non recreational	25
urban space	/rural space	26

Women-Apartments (No.1)

POLE	/CONTRAST	VBL.
open space	/close space	1
more concentration	/less concentration	2
better working possibi.	/no better working	3
relaxation	/no relaxation	4
health	/illness	5
comfort	/no comfort	6
progress	/no progress	7
urban spaces	/historical spaces	8
better sollution	/not better sollution	9
more activities	/less activities	10
welfare	/no welfare	11
old spaces	/new spaces	12
no facilities	/facilities	13
stability	/no stability	14
green spaces	/no green spces	15
esidential spaces	/recreational spaces	16
rural spaces	/urban spaces	17

Women-Apartments (No.2)

POLE	/CONTRAST	VBL.
traditional archi.	/modern archi.	1
tranquility	/no tranquility	2
comfort	/no comfort	3
progress	/no progress	4
better life	/no better life	5
help others	/not help others	6
social improvement	/no social improvement	7
no cruety	/cruety	8
wet rigion	/arid region	9
tempared weather	/no tempared weather	10
efficiency	/no efficiency	11
peace in mind	/no peace in mind	12
facilities	/no facilities	13
health care	/no health care	14
sound society	/no sound society	15
energy saving	/no energ saving	16
old structure	/new structure	17
no stability	/stability	18
no safety	/safety	19
residential	/recreational	20
no amusement	/amusement	21
no easy life	/easy life	22
depression	/evolution	23
urban	/rural	24
no kindness	/kindness	25
no solve problemes	/solve problemes	26
no help others	/help others	27
high cieling	/low cieling	28
beauty	/no beauty	29
bright	/not bright	30
goal achievement	/no goal achiement	31
richness	/poorness	32

Appendix 2 (cont.)

Women-Apartments (No.3)

POLE	/CONTRAST	VBL.
old	/new	1
comfort	/no comfort	2
hope	/disappoinment	3
modern life	/simple life	4
no god satisfaction	/god satisfaction	5
scurity	/no scurity	6
tranquility	/no tranquility	7
better life	/no better life	8
peace in mind	/no peace in mind	9
to solve problems	/not to solve problems	10
healthy weather	/no healthy weather	11
beauty	/no beauty	12
rural life	/urban life	13
easier life	/hard life	14
bright future	/no bright future	15
working possibility	/no working possibility	16
intensive areas	/not intensive areas	17
better dicision making	/no better dicision making	18
progress	/no progress	19
jouiciness	/no jouiciness	20

Women-Apartments (No.4)

POLE	/CONTRAST	VBL.
no modern buildings	/modern buildings	1
no beauty	/beauty	2
less developed	/more developed	3
no poverty	/poverty	4
comfort	/no comfort	5
enjoyment	/no enjoyment	6
peace in mind	/no peace in mind	7
high culture	/low culture	8
outer space	/inner space	9
healthy weather	/no healthy weather	10
mixed with nature	/not mixed with nature	11
health	/no health	12
better life	/no better life	13
bright spaces	/dark spaces	14
no new ideas	/new ideas	15
rural life	/urban life	16
no tranquility	/tranquility	17
no scurity	/security	18
no easy life	/easy life1	19

Women-Apartments (No.5)

POLE	/CONTRAST	VBL.
outer space	/inner space	1
no beauty	/beauty	2
no tranquility	/tranquility	3
variety	/no variety	4
not boring	/boring	5
stability	/no stability	6
beloved spaces	/not beloved spaces	7
closed spaces	/open spaces	8
no freedom	/freedom	9
scurity	/fear	10
gloomy	/not gloomy	11
rural area	/urban area	12
no facilities	/facilities	13
no easy life	/easy life	14
less recreation	/more recreation	15
lower culture	/higher culture	16
loneliness	/no loneliness	17
no safety	/safety	18
social relationship	/no social relationship	19

Women-Apartments (No.6)

POLE	/CONTRAST	
natural envi.	/built envi.	1
beauty	/no beauty	2
delightful	/not delightful	3
better life	/not better life	4
hope	/disappointment	5
goal achivement	/no goal achivment	6
more activities	/less activities	7
desire acievement	/no desire achievement	8
residential spaces	/open spaces	9
no freedom	/freedom	10
no envi.understanding	/envi. understanding	11
not good planning	/good planning	12
no save resources	/save resources	13
no satisfaction	/satisfaction	14
historical spaces	/non historical spaces	15
cultural conscious	/no cultural conscious	16
use of expirences	/not use of expiriences	17
help to others	/no help to others	18
traditional spaces	/modern spaces	19
max. use of space	/no max. use of space	20
disorder	/order	21
no time saving	/time saving	22
industrial society	/non industrial society	23
more pollution	/less pollution	24
illness	/health	25
undevelopment	/development	26
close space	/open space	27

Women-Apartments (No.7)

POLE	/CONTRAST	VBL.
old building	/new building	1
no facility	/facility	2
no tranquility	/tranquility	3
no time to think	/time to think	4
no assesment posibility	/assesment possibility	5
no correct solution	/correct solution	6
no ideal achievement	/ideal achievement	7
no satisfaction	/satisfaction	8
failure	/juiciness	9
green space	/no green space	10
beauty	/no beauty	11
saving energy	/no saving energy	12
more activity	/less activity#	13
goal achievement	/no goal achievement	14
god achievement	/no god achievement	15
open space	/closed space	16
freedom	/no freedom	17
independency	/dependency	18
comfort	/no comfort	19
welfare	/no welfare	20
security	/no security	21
health	/no health	22
better life	/not better life	23
to help others	/not to help others	24
developed society	/undeveloped society	25
religous spaces	/non religous spaces	26
perfection	/no perfection	27
arranged environment	/not arranged environment	28
sustainability	/no sustainability	29
man interference	/less man interference	30
more industrialized	/less industrialized	31
social relationship	/no social relationship	32
crowded area	/no crowded area	33
more noise	/less noise	34
less relaxation	/more relaxation	35
natural environment	/built environment1	36

Women-Houses (No.8)

POLE	/CONTRAST	VBL.
polutted weather	/clean weather	1
illness	/health	2
no dynamism	/dynamism	3
no progress	/progress	4
no economic development	/economic development	5
no welfare	/welfare	6
urban area	/rural area	7
facilities	/no facilities	8
comfort	/no comfort	9
high culture	/low culture	10
man interference	/no man interference	11
sound society	/no sound society	12
old houses	/new houses	13
less sanitation	/more sanitation	14
wet region	/arid region	15
more flourishment	/less flourishment	16
more elevation	/less elevation	17
religious spaces	/non religious spaces	18
god remembrance	/no god remembrance	19
crime decreasing	/crime increasing	20
more prosperity	/less prosperity	21
no safety	/safety	22
no tranquility	/tranquility	23
less education	/more education	24
intensive areas	/non intensive areas	25

Women-Apartments (No.9)

POLE	/CONTRAST	VBL.
rural area	/no rural area	1
beauty	/no beauty	2
security	/no security	3
health	/no health	4
thinking possibility	/no thinking possibility	5
open mind	/close mind	6
understanding others	/no understanding others	7
satisfaction	/no satisfaction	8
tranquility	/no tranquility	9
easy life	/not easy life	10
independency	/dependency	11
help the others	/no help the others	12
more attempts	/less attempts	13
progress	/no progress	14
correct principles	/not correct principles	15
danger	/no danger	16
more recreation	/less recreation	17
healhty weather	/not healthy weather	18
no poverty	/poverty	19
social problemes	/no social problems	20
facilities	/no facilities	21
no god achievement	/god achievement	22
not better life	/better life	23

Appendix 2 (cont.)

Women-Apartments (No.10)

POLE	/CONTRAST	VBL.
old buildings	/new buildings	1
traditional life	/not traditional life	2
human ralationship	/no human relationship	3
help the others	/no help the others	4
comfort	/no comfort	5
tranquility	/no tranquility	6
happiness	/no happiness	7
water	/no water	8
dull spaces	/bright spaces	9
more silence	/less silence	10
more thinking time	/less thinking time	11
saving time	/wasting time	12
better working	/not better working	13
natural landscape	/no natural landscape	14
varied life	/no varied life	15
more identity	/less idetity	16
historical building	/non historical building	17
more expirience	/less expirience	18
urban life	/rural life	19
no serenity	/serenity	20
apartments	/no apartments	21
modern life	/no modern life	22
less communication	/more communication	23
external spaces	/internal spaces	24

Men-Houses (No.1)

POLE	/CONTRAST	VBL.
new style	/old style	1
no built envi.	/built env.	2
no arid region	/arid region	3
no urban area	/urban area	4
no modern style	/modern style	5
open space	/close space	6
no religion	/religion	7
no crowded space	/crowded space	8
no comfort	/comfort	9
no apartments	/apartments	10
tranquility	/tranquility	11
no decision making possi.	/decision making possi.	12
no better life	/better life	13
no progress	/progress	14
no help others	/help others	15
no responssibility	/responsibility	16
not to like others	/to like others	17
no satisfaction	/satisfaction	18
god achievement	/no god achievment	19
freshness	/no freshness	20
facilities	/no facilities	21
happiness	/no happiness	22
dehiscence of talent	/no dehiscence of talent	23
creative possibility	/no creative possibility	24
wlfare	/no welfare	25
friendship	/no friendship	26
philanthropy	/no philanthropy	27
god satisfaction	/no god satisfaction	28
to love nature	/not to love nature	29
get knowledge	/not get knowledge	30
recognition	/no recognition	31
life stability	/no life stability	32
correct chioces	/no correct chioces	33
correct life	/no correct life	34
no desire life	/desire life	35
no good training	/good training	36
no better generation	/better generation	37
no sound society	/sound society	38
cultural growth	/no cultural growth	39
indipendency	/dependency	40

Men-Houses (No.2)

POLE	/CONTRAST	VBL.
low density	/high density	1
tranquility	/no tranquility	2
desireable	/not desirealble	3
more activities	/less activities	4
freshness	/no freshness	5
sustainability	/no sustainability	6
progress	/no progress	7
goal achievement	/no goal achivement	8
life usage	/no life usage	9
traditional spaces	/modern spaces	10
no developed facilities	/developed facilities	11
no comfort	/comfort	12
no energy saving	/energy saving	13
no success in work	/success in work	14
no success	/success	15
not being distinguished	/being distinqueshed	16
open spaces	/close spaces	17
social relation	/no social relation	18
more opportunity	/less opportunity	19
more effeciency	/less effeciency	20
more adaptation	/less adaptation	21
no boring	/boring	22
dynamism	/no dynamism	23
innovation	/no innovation	24
perfection	/deficiency	25
no stable economy	/stable economy	26
rural spaces	/urban spaces	27
no peace in mind	/peace in mind	28
no science progresses	/science progresses	29
no correct methods	/correct methods	30
no people satisfaction	/people satisfaction	31
no common responssibility	/common responssibility	32
no production	/production	33
old structure	/new structures	34
not easy in use	/easy in use	35
no correct choice	/correct choice	36

Men-Houses (No.3)

POLE	/CONTRAST	VBL.
no eastern	/eastern	1
not economical	/economical	2
dependency	/independency	3
no good decision making	/good decision making	4
no benefit	/benefit	5
old buildings	/new buildings	6
no identity	/identity	7
not iranian architec.	/iranian architec.	8
urban space	/no urban space	9
no peace&silence	/peace & silence	10
crowded	/not crowded	11
no tranquility	/tranquility	12
not to feel alive	/to feel alive	13
no satisfaction	/satisfaction	14
no enjoyment	/enjoyment	15
illness	/health	16
hard life	/better life	17
no goal achievement	/goal achievement	18
no green	/green	19
no sustainability	/sustainability	20

Men-Houses (No.4)

POLE	/CONTRAST	VBL.
new style	/old style	1
residential space	/open space	2
no religion	/religion	3
eastern	/western	4
non historical	/historical	5
external space	/internal space	6
no water	/water	7
rural	/not rural	8
no tranquility	/tranquility	9
no comfort	/comfort	10
no working possibi.	/working possibi.	11
no manage life	/manage life	12
no peace in mind	/peace in mind	13
not to be religious	/to be religious	14
no space use	/space use	15
not to consider economics	/consider economics	16
no good resource use	/good resource use	17
no readiness for activity	/readiness for activity	18
no beauty	/beauty	19
no green space	/green space	20

Men-Houses (No.5)

POLE	/CONTRAST	VBL.
built envi.	/natural envi.	1
no health	/health	2
no progress	/progress	3
no perfaction	/perfection	4
free will	/fatalism	5
tranquility	/hardness	6
better life	/not better life	7
life usage	/no life usage	8
no thinking possibi.	/thinking possibility	9
no valuse	/valuse	10
old	/new	11
no respond to needs	/respond to needs	12
misunderstanding	/understanding	13
wrong principles	/correct principles	14
less opportunities	/more opportunity	15
richness	/poorness	16
satisfaction	/no satisfaction	17
time usage	/no time usage	18
eastern life style	/western life style	19
goals achievement	/no goals achievement	20
open sapce	/closed space	21
peace in mind	/no peace in mind	22
better thinking	/not better thinking	23

Men-Houses (No.6)

POLE	/CONTRAST	VBL.
apartments	/traditional houses	1
not airy	/airy	2
no comfort	/comfort	3
no happiness	/happiness	4
disappoint	/hope	5
not like life	/like life	6
urban envi.	/not urban envi.	7
not good climate	/good climate	8
illness	/health	9
green	/not green	10
cheerful	/not cheerful	11
like others	/not like others	12
same thinking	/diffrent thinking	13
progress	/no progress	14
civilization	/no civilization	15
old life style	/modern life style	16
no social relations	/social relations	17
no exchange viers	/exchange views	18
less information	/more information	19
historical	/non historical	20
more knowledge	/less knowledge	21
controled life	/no controled life	22
more activities	/less activities	23
open spases	/close spaces	24
connection with nature	/no connection with nature	25
happy	/unhappy	26
better life	/not better life	27
satisfaction	/not satisfaction	28
sustainability	/sustainability	29

Appendix 2 (cont.)

Men-Houses (No.7)

POLE	/CONTRAST	VBL.
urban space	/no urban space	1
progress	/no progress	2
comfort	/no comfort	3
time saving	/no time saving	4
more opportunity	/less opportunity	5
old building	/new building	6
stability	/no stability	7
safety	/no safety	8
peace in mind	/no peace in mind	9
rural area	/urban area	10
not modern	/modern	11
wasting energy	/no wasting energy	12
no good weather	/good weather	13
short life	/long life	14
intensive area	/not intensive area	15
welfare	/no welfare	16
no poverty	/poverty	17
more education	/less education	18
more facilities	/less facilities	19
no green space	/green space	20
natural	/not natural	21
nature preventing	/no nature preventing	22
culture	/no culture	23
historical spaces	/no historical spaces	24

Men-Houses (No.8)

POLE	/CONTRAST	VBL.
no tradirional spaces	/traditional spaces	1
no high technology	/high technology	2
less adaptaton	/more adaptation	3
open space	/close spacce	4
no green	/green	5
not good climate	/good climate	6
no modern life	/modern life	7
no religious space	/religious space	8
no cultural identity	/cultural identity	9
no cultural continuation	/cultural continuation	10
no cultural improvement	/cultural improvement	11
no national identity	/national identity	12
no welfare	/wlfare	13
health	/no health	14
no efficiency	/efficiency	15
no life usage	/life usage	16
no silence	/silence	17
no traquility	/tranquility	18
not like life	/to like life	19
no envi.pressure	/envi.pressure	20
connection to nature	/no connection to nature	21
cognition of univers	/no cognition of univers	22
correct cosmology	/no correct cosmology	23
religion	/no religion	24
god achievement	/no god achievement	25
satisfaction	/no satisfaction	26
no suitable cnditions	/suitable conditions	27
not better life	/better life	28
goal achievement	/no goal achivement	29
no better opportunities	/better opportunities	30
dependency	/independency	31
no sufficiency	/sufficiency	32
no religious society	/religious society	33

Men-Houses (No.9)

POLE	/CONTRAST	VBL.
trees	/no trees	1
courtyard	/no courtyard	2
common space	/private space	3
congestion	/tranquility	4
western style	/eastern	5
residential space	/exploration space	6
internal spaces	/external spaces	7
arid region	/wet region	8
religion	/no religion	9
tranquility	/no tranquility	10
thinking possibility	/no thinking possibility	11
respond to human needs	/no respond to human needs	12
self control possibility	/no self control possibi.	13
positive respond to god	/negative respond to god	14
god achievement	/no god achievement	15
variety	/no variety	16
ready for problems	/not ready for problems	17
to solve problems	/not to solve problems	18
more ability	/less ability	19
to be useful	/not to be useful	20
not attractive	/attractive	21
no beauty	/beauty	22
no kindness	/kindness	23
no social relation	/social relation	24
no security	/security	25
no elevation	/elevation	26
to be with family	/not to be with fami.	27
pleasure	/no pleasure	28
good mentality	/no good mentality	29
green space	/no green space	30
to feel alive	/not to feel alive	31
no dynamism	/dynamism	32
god remembrance	/no god remembrance	33
decreasing of roughness	/increasing of roughness	34
progress	/no progress	35
welfare	/no welfare	36
more cooperation	/less cooperation	37

Men-Houses (No.10)

POLE	/CONTRAST	VBL.
water	/no water	1
residential	/no residential	2
urban spaces	/recreational spaces	3
not crowded	/crowded	4
green	/no green	5
beauty	/ugly	6
health	/illness	7
ability	/no ability	8
better life	/no better life	9
not airy space	/airy space	10
no comfort	/comfort	11
dejection	/juiciness	12
bad morale	/good morale	13
no hope	/hope	14
death	/life	15
less god recompence	/more god recompence	16
no achieve to god	/achieve to god	17
not educated	/educated	18
no improvement	/improvement	19
no life usage	/life usage	20
order in life	/no order in life	21
tranquility	/no tranquility	22
happiness	/misery	23

Women-Houses (No.1)

POLE	/CONTRAST	VBL.
eastern style	/western style	1
no good architecture	/good architecture	2
no safety	/safety	3
no security	/security	4
old	/new	5
cultural adaptation	/no cultural adaptation	6
sympathy to people	/no symapthy to people	7
cooperation	/no cooperation	8
better working possi.	/no better working possi.	9
goal achievement	/no goal achievement	10
no responsibility	/responsibility	11
no facilities	/facilities	12
no satisfaction	/satisfaction	13
no sustainability	/sustainability	14
no welfare	/welfare	15
no tranquility	/tranquility	16
no friendship	/friendship	17
not to like life	/to like life	18
not crowded	/crowded	19
relaxation	/no relaxation	20
happiness	/no happiness	21
god achievement	/no god achievement	22
health	/no health	23
ideal society	/no ideal society	24
perfection	/no perfection	25

Women-House (No.2)

POLE	/CONTRAST	VBL.
urban area	/rural area	1
facilities	/no facilities	2
welfare	/no welfare	3
safety	/no safety	4
comfort life	/no comfort life	5
closed space	/open space	6
no juiciness	/juiciness	7
no health	/health	8
no sustainability	/sustainability	9
no goal achievement	/goal achievement	10
not better life	/better life	11
no satisfaction	/satisfaction	12
new style	/old style	13
no beauty	/beauty	14
no past rememberance	/past rememberance	15
no values	/values	16
no residential	/residential	17
no tranquility	/tranquility	18
no improvement	/improvement	19
no green space	/green space	20
western style	/eastern style	21
no culture	/culture	22
no water	/water	23

Women-Houses (No.3)

POLE	/CONTRAST	VBL.
closed space	/open space	1
gloomy	/not gloomy	2
no happiness	/happiness	3
no success	/success	4
no identity	/identity	5
no goal achievement	/goal achievement	6
new buildings	/old buildings	7
no luxury	/luxury	8
consider serious things	/no consider serious thing	9
no temperate weather	/temperate weather	10
no green area	/green area	11
no different colours	/different colours	12
no nature understanding	/nature understanding	13
rural area	/urban area	14
no culture	/culture	15
no social understanding	/social understanding	16
not to manage life	/to manage life	17

Appendix 2 (cont.)

Women-Houses (No.4)

POLE	/CONTRAST	VBL.
old buildings	/new buildings	1
no facilities	/facilities	2
no tranquility	/tranquility	3
no peace in mind	/peace in mind	4
not to like life	/to like life	5
closed spaces	/open spaces	6
dependency	/independency	7
not comfort life	/comfort life	8
no mental health	/mental health	9
no clear future	/clear future	10
no happiness	/happiness	11
rural area	/urban area	12
no useful life	/useful life	13
no use of time	/use of time	14
no good landscape	/good landscape	15
no variation	/variation	16
to become bored	/not to become bored	17
not to be succeed	/to be succeed	18
no good morale	/good morale	19
no goal achievement	/goal achievement	20

Women-Houses (No.5)

POLE	/CONTRAST	VBL.
old style	/modern style	1
not clean	/clean	2
no health	/health	3
no pleasure	/pleasure	4
open spaces	/closed spaces	5
natural landscape	/no natural landscape	6
mental health	/no mental health	7
social relationship	/no social relationship	8
satisfaction	/no satisfaction	9
progress	/no progress	10
goal achievement	/no goal achievement	11
no facilities	/facilities	12
no comfort life	/comfort life	13
no tranquility	/tranquility	14
not to feel alive	/to feel alive	15
no developement	/developement	16
no culture	/culture	17
crowded spaces	/no crowded spaces	18
less use of life	/more use of life	19
no good weather	/good weather	20
short life	/long life	21
no thinking possibility	/thinking possibility	22
no planning	/planning	23
no desire life	/desire life	24
man intervention	/no man intervention	25
no good society	/good society	26
no perfection	/perfection	27
safety	/no safety	28
welfare	/no welfare	29

Women-Houses (No.6)

POLE	/CONTRAST	VBL.
new styles	/old styles	1
comfort	/no comfort	2
god satisfaction	/no god satisfaction	3
aims achievement	/no aims achievement	4
rural	/urban	5
no relaxation	/relaxation	6
no good life	/good life	7
not to like others	/to like others	8
no good weather	/good weather	9
health	/no health	10
islamic culture	/no islamic culture	11
no perfection	/perfection	12
no luxury life	/luxury life	13
no spiritual satisfaction	/spiritual satisfaction	14
no jobs completion	/jobs completion	15
no progress	/progress	16
open space	/closed space	17
no apartments	/apartments	18
indipendency	/dependency	19

Women-Houses (No.7)

POLE	/CONTRAST	VBL.
natural environment	/no natural environment	1
beauty	/no beauty	2
peace in mind	/no peace in mind	3
comfort life	/no comfort life	4
values	/no values	5
more life usage	/less life usage	6
urban area	/rural area	7
no tranquility	/tranquility	8
no satisfaction	/satisfaction	9
no health	/health	10
no goal achievement	/goal achievement	11
artificial beauty	/natural beauty	12
man intervention	/no man intervention	13
modern style	/traditional style	14
no natural life	/natural life	15
not to feel alive	/to feel alive	16
arid region	/non arid region	17
not easy working	/easy working	18
not to feel responsible	/to feel responsible	19
death	/life	20
no stability	/stability	21
no safety	/safety	22
no desirable envi.	/desirable envi.	23
no better life	/better life	24

Women-Houses (No.8)

POLE	/CONTRAST	VBL.
bad weather	/good weather	1
no health	/health	2
no success	/success	3
no happiness	/happiness	4
old style	/new style	5
no comfort	/comfort	6
not help to others	/help to others	7
no god achievement	/god achievement	8
open space	/closed space	9
no good mental state	/good mental state	10
no social relationship	/social relationship	11
not commonly accepted	/commonly accepted	12
low income	/high income	13
no beauty	/beauty	14
no tranquility	/tranquility	15
no efficiency	/efficiency	16
no goal achievement	/goal achievement	17
no green space	/green space	18
no coordination	/coordination	19
no luxury	/luxury	20
no spirituality	/spirituality	21
no satisfaction	/satisfaction	22

Women-Houses (No.9)

POLE	/CONTRAST	VBL.
no traditinal	/traditinal	1
no facilities	/facilities	2
urban area	/non urban area	3
apartment	/traditional house	4
no recreational spaces	/recreational spaces	5
not attractive	/attractive	6
no values	/values	7
suitable to live	/not suitable to live	8
no comfort	/comfort	9
no beauty	/beauty	10
no tranquility	/tranquility	11
not better life	/better life	12
less time usage	/more time usage	13
to waste the life	/not to waste the life	14
no enjoyment	/enjoyment	15
no good morale	/good morale	16
illness	/health	17
no efficiency	/efficiency	18
no sustainability	/sustainability	19
modern	/not modern	20
no freshness	/freshness	21

Women-Houses (No.10)

POLE	/CONTRAST	VBL.
traditional	/modern	1
no tranquility	/tranquility	2
no relaxation	/relaxation	3
no welfare	/welfare	4
no comfort	/comfort	5
no working possibility	/working possibility	6
no progress	/progress	7
wet environment	/arid environment	8
no better life	/better life	9
no good future	/good future	10
intensive areas	/not intensive areas	11
green spaces	/not green spaces	12
good weather	/no good weather	13
health	/no health	14
facilities	/no facilities	15
saving time	/not saving time	16
urban area	/rural area	17

Appendix 3 - Original Correlation Tables

Figure A3.1 - Men (Apartments)

Correlation table, showing the relationships between all the variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1.00																			
2	-0.01	1.00																		
3	-0.46	0.06	1.00																	
4	-0.23	0.35	0.11	1.00																
5	0.73	0.14	-0.43	-0.13	1.00															
6	-0.45	0.49	0.49	0.47	-0.39	1.00														
7	0.25	0.31	-0.13	0.37	0.19	0.17	1.00													
8	0.64	-0.11	-0.73	-0.16	0.28	-0.40	0.21	1.00												
9	-0.08	-0.68	0.14	-0.09	-0.11	-0.38	-0.01	0.08	1.00											
10	0.68	-0.38	-0.59	-0.40	0.45	-0.70	0.10	0.83	0.33	1.00										
11	-0.37	0.30	0.01	0.26	-0.25	0.52	0.67	-0.11	-0.09	-0.33	1.00									
12	0.05	0.05	0.45	0.07	-0.15	0.18	-0.28	-0.48	-0.42	-0.41	-0.42	1.00								
13	0.67	-0.04	-0.88	-0.34	0.47	-0.43	0.28	0.83	-0.16	0.67	0.05	-0.41	1.00							
14	-0.59	-0.44	0.10	0.15	-0.20	-0.09	-0.29	-0.56	0.17	-0.37	-0.01	0.11	-0.39	1.00						
15	-0.07	-0.11	-0.26	0.31	-0.16	0.10	0.67	0.19	0.20	0.10	0.75	-0.39	0.22	0.02	1.00					
16	0.24	0.32	-0.27	-0.51	0.44	0.05	-0.16	-0.04	-0.65	-0.05	0.03	0.13	0.37	-0.14	-0.25	1.00				
17	0.74	-0.25	-0.63	0.00	0.48	-0.34	0.28	0.84	0.28	0.78	-0.14	-0.38	0.69	-0.46	0.28	-0.11	1.00			
18	0.05	0.26	-0.29	0.42	-0.00	0.26	0.63	0.13	-0.16	-0.08	0.70	-0.21	0.23	-0.15	0.62	0.04	0.23	1.00		
19	0.80	-0.23	-0.67	-0.37	0.45	-0.75	0.17	0.81	0.16	0.85	-0.38	-0.20	0.79	-0.44	0.01	0.01	0.72	-0.05	1.00	
20	-0.59	-0.42	0.66	0.04	-0.55	0.05	-0.28	-0.62	0.53	-0.42	-0.00	0.23	-0.71	0.51	-0.06	-0.54	-0.49	-0.40	-0.43	1.00
21	0.11	-0.55	-0.06	0.21	-0.42	-0.09	0.15	0.35	0.49	0.25	0.02	0.01	0.08	-0.09	0.49	-0.64	0.46	0.29	0.26	0.22
22	0.21	-0.55	0.04	-0.72	-0.07	-0.55	-0.43	-0.00	0.13	0.19	-0.51	0.38	0.14	0.12	-0.40	0.15	-0.12	-0.54	0.38	0.28
23	-0.63	-0.34	0.69	0.09	-0.63	0.02	-0.36	-0.60	0.51	-0.42	-0.20	0.27	-0.78	0.46	-0.22	-0.61	-0.55	-0.43	-0.41	0.91
24	-0.33	-0.35	0.00	-0.29	-0.19	-0.25	-0.24	-0.29	0.10	-0.26	-0.07	0.06	-0.01	0.62	-0.25	0.02	-0.43	-0.42	-0.04	0.41
25	0.63	-0.52	-0.51	-0.59	0.37	-0.70	0.08	0.72	0.48	0.90	-0.20	-0.44	0.66	-0.37	0.19	0.02	0.73	-0.00	0.60	-0.27
26	0.47	0.39	-0.37	0.36	0.36	0.18	0.28	0.33	-0.31	0.01	0.16	-0.05	0.36	-0.44	0.28	0.15	0.48	0.51	0.17	-0.45
27	0.36	0.55	-0.15	0.11	0.29	0.41	0.20	-0.03	-0.02	-0.28	0.17	0.44	0.26	-0.32	-0.00	0.67	0.02	0.41	-0.06	-0.58
28	0.48	0.19	-0.51	-0.09	0.23	-0.27	-0.16	0.74	-0.06	0.58	-0.35	-0.31	0.49	-0.65	-0.14	0.01	0.60	-0.07	0.57	-0.46
29	0.68	-0.47	-0.42	-0.55	0.39	-0.85	-0.26	0.54	0.20	0.77	-0.73	0.09	0.51	-0.17	-0.32	0.04	0.48	-0.43	0.85	-0.16
30	0.32	-0.30	-0.26	0.33	0.07	-0.18	0.06	0.56	0.49	0.50	-0.33	-0.23	0.19	-0.22	0.08	-0.62	0.73	-0.12	0.44	0.03
31	-0.45	0.56	0.33	-0.07	-0.34	0.55	0.19	-0.16	-0.30	-0.32	0.56	-0.20	-0.17	-0.27	0.03	0.16	-0.47	0.02	-0.44	-0.04
32	-0.11	-0.62	0.07	-0.56	0.08	-0.42	-0.15	-0.24	0.35	0.08	-0.00	-0.10	0.01	0.53	0.03	0.12	-0.21	-0.31	-0.01	0.41
33	-0.37	-0.17	-0.12	-0.25	-0.17	-0.23	-0.15	-0.32	-0.02	-0.13	0.00	0.10	-0.03	0.54	-0.09	0.18	-0.39	-0.16	-0.02	0.22
34	-0.08	-0.81	0.06	0.09	-0.29	-0.45	-0.48	0.90	0.66	0.26	-0.53	0.17	-0.23	0.36	-0.04	-0.55	0.17	-0.30	0.17	0.55
35	-0.69	0.22	0.76	0.17	-0.60	0.46	-0.30	-0.72	-0.07	-0.72	-0.03	0.43	-0.79	0.25	-0.42	-0.18	-0.80	-0.30	-0.65	0.52
36	0.08	0.19	-0.25	0.14	0.06	0.03	-0.02	0.60	0.18	0.28	-0.04	-0.66	0.23	-0.44	-0.07	-0.27	0.43	-0.12	0.20	-0.28
37	0.38	-0.23	0.07	-0.37	0.33	-0.36	0.13	0.20	0.28	0.30	-0.10	-0.19	0.20	-0.17	-0.12	0.02	0.15	-0.12	0.29	-0.14

	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
21	1.00																
22	0.12	1.00															
23	0.21	0.26	1.00														
24	-0.14	0.59	0.39	1.00													
25	0.34	0.35	-0.33	-0.14	1.00												
26	0.16	-0.36	-0.58	-0.46	0.04	1.00											
27	-0.23	-0.13	-0.63	-0.24	-0.28	0.59	1.00										
28	0.11	-0.13	-0.41	-0.50	0.44	0.46	-0.01	1.00									
29	0.17	0.69	-0.14	0.13	0.71	-0.09	-0.19	0.42	1.00								
30	0.57	-0.19	0.03	-0.29	0.35	0.23	-0.37	0.54	0.32	1.00							
31	-0.43	-0.33	-0.03	-0.10	-0.33	-0.19	0.03	-0.05	-0.57	-0.44	1.00						
32	-0.10	0.59	0.20	0.62	0.28	-0.41	-0.34	-0.51	0.26	-0.35	-0.13	1.00					
33	-0.26	0.27	0.27	0.59	-0.12	-0.62	-0.18	-0.41	0.08	-0.29	-0.04	0.26	1.00				
34	0.60	0.40	0.58	0.13	0.30	-0.33	-0.59	0.02	0.44	0.49	-0.65	0.21	0.19	1.00			
35	-0.19	0.03	0.73	0.26	-0.71	-0.53	-0.13	-0.45	-0.46	-0.34	0.36	-0.17	0.31	0.04	1.00		
36	0.03	-0.44	-0.21	-0.37	0.23	0.21	-0.32	0.73	0.00	0.55	0.29	-0.41	-0.48	-0.12	-0.23	1.00	
37	0.03	0.40	-0.08	0.18	0.43	-0.07	-0.11	-0.11	0.35	-0.16	-0.09	0.45	-0.38	-0.12	-0.20	0.03	1.00

Intensity (root mean square) +0.384 Mean absolute value +0.317

Figure A3.2 - Women (Apartments)

Correlation table, showing the relationships between all the variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1.00																			
2	0.42	1.00																		
3	0.04	0.36	1.00																	
4	-0.06	0.37	-0.30	1.00																
5	-0.59	-0.53	-0.10	-0.12	1.00															
6	0.86	0.29	0.32	-0.40	-0.48	1.00														
7	-0.04	-0.20	-0.08	-0.06	0.24	-0.00	1.00													
8	0.17	0.11	0.01	0.25	-0.37	0.02	0.12	1.00												
9	0.50	0.44	0.16	0.55	-0.26	0.29	0.10	0.05	1.00											
10	-0.64	-0.31	-0.16	0.40	0.32	-0.58	-0.00	0.04	0.02	1.00										
11	-0.04	-0.19	-0.27	0.18	0.29	-0.15	0.65	0.17	0.29	0.10	1.00									
12	0.24	-0.18	-0.21	0.08	0.09	0.27	-0.40	-0.41	0.19	0.09	-0.33	1.00								
13	0.66	0.26	-0.04	-0.32	-0.57	0.62	-0.02	0.01	-0.04	-0.63	-0.27	-0.14	1.00							
14	0.19	0.49	0.60	0.27	-0.42	0.26	0.00	0.09	0.70	0.19	-0.10	-0.03	-0.09	1.00						
15	0.59	-0.00	-0.15	-0.14	-0.02	0.47	0.51	-0.02	0.43	-0.32	0.39	0.19	0.17	0.05	1.00					
16	-0.02	0.09	0.54	-0.25	0.34	-0.01	0.33	0.27	0.04	-0.26	0.21	-0.54	-0.09	0.06	0.20	1.00				
17	0.76	0.51	0.44	-0.11	-0.70	0.68	0.04	0.25	0.51	-0.54	-0.19	-0.15	0.59	0.58	0.42	0.26	1.00			
18	0.05	0.31	0.43	0.40	0.03	0.07	0.52	0.28	0.65	0.13	0.50	-0.22	-0.37	0.63	0.21	0.39	0.24	1.00		
19	0.02	0.29	0.51	0.13	0.23	-0.11	-0.25	-0.06	0.35	0.02	-0.48	0.46	-0.27	0.45	0.02	0.21	0.16	0.27	1.00	
20	-0.25	-0.21	0.25	-0.32	0.58	-0.12	0.10	-0.67	0.04	0.09	0.17	0.14	-0.34	-0.03	0.27	0.29	-0.21	0.02	0.32	1.00
21	0.80	0.69	0.29	0.08	-0.47	0.65	-0.04	-0.12	0.62	-0.66	-0.11	0.16	0.46	0.38	0.53	0.14	0.76	0.24	0.38	0.06
22	-0.40	-0.20	-0.04	0.28	0.68	-0.42	0.31	-0.07	0.06	0.26	0.56	-0.14	-0.44	-0.28	-0.13	0.30	-0.55	0.38	-0.00	0.35
23	0.23	0.32	-0.10	0.34	-0.73	0.08	-0.13	0.38	0.26	-0.17	0.12	-0.21	0.19	0.33	-0.21	-0.36	0.31	0.17	-0.49	-0.65
24	0.18	0.05	0.25	-0.22	-0.24	0.29	0.39	-0.07	0.04	-0.37	0.05	-0.43	0.61	0.13	-0.09	0.12	0.38	0.16	-0.19	-0.16
25	-0.50	-0.29	0.10	0.16	0.53	-0.36	0.41	-0.03	0.09	0.54	0.64	-0.20	-0.56	0.02	-0.13	0.15	-0.51	0.49	-0.15	0.41
26	0.68	0.21	0.51	-0.41	-0.36	0.90	0.25	0.22	0.25	-0.42	-0.05	0.07	0.46	0.35	0.43	0.22	0.65	0.32	0.12	-0.11
27	0.02	0.07	-0.15	-0.35	0.04	0.14	-0.31	-0.44	-0.37	-0.06	-0.55	0.31	0.23	-0.17	0.04	-0.26	-0.07	-0.60	0.22	0.07
28	0.26	-0.09	-0.32	-0.04	-0.42	0.17	-0.03	-0.07	0.12	0.01	0.21	-0.16	0.54	-0.01	0.02	-0.42	0.18	-0.30	-0.63	-0.11
29	0.72	0.48	0.47	-0.15	-0.63	0.63	-0.22	-0.04	0.47	-0.33	-0.43	0.26	0.56	0.63	0.22	-0.10	0.80	0.11	0.36	-0.17
30	-0.18	-0.13	-0.11	0.23	0.30	-0.22	0.52	-0.01	0.30	0.32	0.84	-0.34	-0.22	0.01	0.13	0.12	-0.25	0.45	-0.39	0.32
31	0.26	0.38	-0.05	0.36	0.13	-0.03	0.44	0.10	0.57	-0.24	0.56	-0.26	-0.11	0.19	0.57	0.49	0.27	0.54	0.14	0.13
32	-0.10	-0.45	-0.16	-0.14	0.36	-0.09	-0.37	-0.27	-0.12	0.38	-0.35	0.58	-0.18	-0.22	0.11	-0.12	-0.24	-0.48	0.29	0.42
33	0.85	0.60	0.26	-0.02	-0.70	0.70	-0.37	0.16	0.38	-0.59	-0.46	0.20	0.63	0.31	0.31	0.02	0.82	-0.10	0.26	-0.25
34	0.40	0.24	-0.16	0.67	-0.24	0.11	0.20	0.17	0.91	0.13	0.48	0.09	-0.01	0.48	0.35	-0.10	0.34	0.55	0.02	-0.14
35	-0.43	-0.35	-0.06	0.30	0.54	-0.51	0.04	-0.09	0.17	0.67	0.17	0.18	-0.62	0.01	0.07	0.15	-0.38	0.12	0.24	0.55
36	-0.12	0.12	-0.19	0.54	0.22	-0.23	-0.18	-0.36	0.28	0.18	-0.19	0.63	-0.44	0.08	0.05	-0.32	-0.26	0.17	0.62	0.12
37	0.07	0.10	-0.10	0.43	-0.16	-0.17	0.38	0.41	0.48	0.15	0.60	-0.59	0.11	0.27	0.05	0.23	0.23	0.45	-0.40	-0.22
38	-0.77	-0.51	-0.02	0.14	0.66	-0.56	-0.05	-0.15	-0.53	0.49	0.00	-0.20	-0.33	-0.32	-0.64	0.11	-0.69	-0.18	-0.06	0.11
39	0.66	0.27	0.22	-0.25	-0.33	0.70	0.14	0.14	0.20	-0.78	-0.00	0.14	0.35	0.12	0.41	0.16	0.54	0.24	0.14	-0.28
40	0.07	0.36	0.59	0.00	0.14	0.19	-0.20	-0.23	0.21	-0.13	-0.57	0.29	-0.10	0.40	-0.02	0.34	0.27	0.23	0.95	0.18

	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
21	1.00																			
22	-0.27	1.00																		
23	0.14	-0.35	1.00																	
24	0.17	0.06	0.21	1.00																
25	-0.44	0.82	-0.22	0.06	1.00															
26	0.48	-0.25	-0.03	0.37	-0.12	1.00														
27	0.02	-0.56	-0.31	-0.29	-0.58	-0.06	1.00													
28	-0.00	-0.14	0.37	0.42	0.04	0.00	-0.12	1.00												
29	0.66	-0.58	0.20	0.31	-0.46	0.73	0.20	0.20	1.00											
30	-0.18	0.72	-0.01	0.22	0.85	-0.09	-0.60	0.40	-0.35	1.00										
31	0.48	0.21	0.04	-0.08	0.03	-0.04	-0.18	-0.21	-0.09	0.30	1.00									
32	-0.20	-0.00	-0.67	-0.47	-0.03	-0.15	0.30	-0.03	-0.04	-0.18	-0.36	1.00								
33	0.82	-0.56	0.20	0.08	-0.70	0.53	0.15	0.10	0.78	-0.49	0.09	0.02	1.00							
34	0.38	0.19	0.38	0.12	0.29	0.06	-0.51	0.35	0.24	0.48	0.52	-0.16	0.19	1.00						
35	-0.31	0.50	-0.55	-0.42	0.54	-0.37	-0.27	-0.14	-0.40	0.38	0.04	0.67	-0.36	0.19	1.00					
36	0.19	0.14	-0.14	-0.38	-0.05	-0.30	0.10	-0.51	-0.10	-0.22	0.16	0.20	-0.04	0.18	0.30	1.00				
37	-0.00	0.30	0.40	0.41	0.36	-0.08	-0.63	0.51	-0.07	0.67	0.44	-0.39	-0.10	0.78	0.10	-0.35	1.00			
38	-0.82	0.46	-0.35	0.05	0.45	-0.43	0.05	-0.08	-0.51	0.18	-0.37	0.18	-0.73	-0.39	0.25	-0.16	0.02	1.00		
39	0.60	-0.34	0.30	0.20	-0.46	0.63	0.03	-0.26	0.47	-0.37	0.30	-0.47	0.50	0.04	-0.70	0.02	-0.20	-0.55	1.00	
40	0.40	-0.11	-0.38	-0.06	-0.29	0.24	0.29	-0.69	0.42	-0.53	0.12	0.16	0.34	-0.13	0.04	0.47	-0.42	-0.05	0.27	1.00

Intensity (root mean square) +0.356 Mean absolute value +0.291